



Traveling consultants offer tips and tricks for managing life on the road. IT Carters, page 95

Handhelds are on a high, with Windows CE machines leading the way. Buyer's Guide, page 85

# COMPUTERWORLD

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News updates, features, forums: [www.computerworld.com](http://www.computerworld.com)  
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## Compaq grabs Tandem



Compaq's Eckhard Pfeiffer

"It just happened, like two people falling in love. We've had legal contracts and licensing agreements going back some time. So we've been dating a while."

► \$3B deal buys service, high-end servers

► Forget the endless rumors about Digital and Apple. Desktop maven Compaq took everyone by surprise last week and eloped with fault-tolerant systems maker Tandem. Senior writer April Jacobs and senior editor Jaikumar Vijayan explore Compaq's future and explain how to tell when a merger goes south.

See stories, pages 16 and 17



Tandem's Enrico Pesatori

"Expanded business, better customer relationships — from small business to the largest enterprise. This is the goal of the relationship."



Total System Services' IS chief Mary Stewart (right) relies on Robin Skipworth, a teacher trained to be an IS professional

## IS labor drought will last past 2003

► Compensation costs may increase by \$15B

By Julia King

THE IS LABOR shortage won't be a fact of corporate life for the next six to 10 years. And it's going to cost a bundle.

Number cruncher Howard Rubin figures the talent short-

age could cost as much as \$15 billion per year in higher compensation costs, plus as much as \$500 billion per year in lost corporate revenue from uncompleted information systems projects.

"It's very real, and there is no one quick fix" for the staffing shortfall, said Charles Poppert, vice president of corporate computing resources at pharmaceutical giant Merck & Co.

Lab. drought, page 28

## New lease for Token Ring: Gigabit speed

By Bob Wallace

XTIAN CORP. is developing a high-speed networking option called Gigabit Token Ring that offers users an alternative to migrating from Token Ring LANs to Ethernet-based technologies.

The Calabasas, Calif.-based company plans to ship the first Gigabit Token Ring switches

and uplinks for its current LAN switches by year's end. Computeworld has learned.

Users said they have felt dead-ended by Token Ring because of its 16M bit/sec limit. Those looking for more bandwidth have moved to 100M bit/sec Fast Ethernet for their backbone networking. Ethernet also offers a further upgrade path to Gigabit Ethernet.

Gigabit Token Ring "is technically feasible and represents new life for Token Ring users," said Kevin Tully, president of The Tolly Group, a switch testing facility and research firm in Manasquan, N.J.

"This will definitely help users who've been stuck on Token Ring bandwidth and are looking for alternatives," said Bill Horst, an information technology officer at the U.S. General Services Administration in Boston. "We have at least one agency that's a big IBM shop and has been sticking with the technology. There's a market for Gigabit Token Ring."

But the market is quickly shrinking. Intel Corp. said recently that its research shows

Gigabit Token Ring, page 122

## When most people think "comptroller," they think bean counter, not IS visionary.



But they haven't met Leola Didrickson. When she took office in Illinois, the state tracked \$5 billion per year in Medicaid spending with a clipboard and colored markers.

Comptroller, page 12

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# Oracle tilts at Windows

► Launches broad offensive against Microsoft

By Craig Stedman  
New York

AFTER MORE THAN 3 years of talk and technology demos, Oracle Corp. finally is ready to mount its uphill assault against Microsoft's dominance.

Last week's release of the long-promised Oracle's database and companion network computer operating software gives Oracle the footing to try to wrench away some of Microsoft Corp.'s industry dominance.

Now comes the hard part for Oracle: selling its vision of server-based network computing to users who don't have any urge to turn away from the Microsoft-powered desktop world.

Oracle also has to sell itself. For many users, the Redwood Shores, Calif., company remains a database vendor rather than the broader software supplier it wants to become.

"The only Oracle product we're using now is the database engine, and I don't see that changing," said Franklin Winston, director of computer applications at the American Hospital Association in Chicago.

Nor is the association thinking of slimming down its fat-client desktops, Winston said.

"It wouldn't be an easy switch to take on some sweeping new direction where the applications run somewhere other than PCs," he said. "Everybody's happy, and I don't want to throw any wrench in there right now."

Papa John's International, Inc. also relies on Oracle only for its database, said Kirk Hay, director of enterprise systems at the Louisville, Ky., pizza chain. But whenever Papa John's buys software, "we look at Microsoft's products just because it's Microsoft," he said. "You always have to consider them."

Oracle and Microsoft haven't competed much outside the database and tools markets until

now. But as Microsoft looks to replicate its desktop success in the enterprise, Oracle is trying to avoid second-tier status by using network computing to challenge Microsoft at the front end.

Oracle wants to "own your environment very much the same way Microsoft wants to," said Judith Hurwitz, president of the Hurwitz Group, Inc. consultancy in Newton, Mass. "In many ways, you're seeing a mirror image of Microsoft at Oracle."

Oracle CEO Larry Ellison said at a press conference here that the company this year "will just be getting the bugs out" of its

NC Server software and network computer distribution and support systems. Third-party

network computers built from Oracle's reference design are just trickling into the market.

Most analysts view network computers as replacements for dumb terminals at this point. But Ellison reiterated his prediction that thin-client boxes will outsell PCs by the end of the decade.

Oracle hopes to build clout with users by stitching Oracle's and its applications and network computing technology into a Microsoft-like bundle.

Dunlop Tire Co. is firmly in Oracle's corner. The Ambury, N.Y. tire maker uses a full set of Oracle's software and wants to buy network computers to give factory workers access to an upcoming intranet, said Hugh Allan, manager of information technology.

But to really make its case as a Microsoft alternative, Oracle needs "to develop a little better history with some of its products," Allan said. Products such as Sedona and its World Wide Web browser have "either been dropped or fallen by the wayside, and there's a little bit of that concern with the network computer," he added. □

## Oracle's network computing lineup

Product	Availability
Oracle8	Now
NC Server software	Now
Network in a Box bundle	Mid-July
Oracle Applications 10.7	Late July for Oracle8

Computer scientists Cassidy Shih and Charles Hish make intelligent agents mainstream. In Depth, page 50

45 women wear pretty white ones, and Bruce isn't the same as understanding. Corporate Strategies, page 41

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"It's The Godfather approach: 'Let me make you an offer you can't refuse.'"

— Ed Black, President and CEO,  
Computer & Communications Industry Association,  
Washington

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Computer scientists Candy Sliover and Charles Rich make intelligent agents mainstream. In Depth, page 93. IS women soar parity with men, but trace isn't the same as understanding. Corporate Strategies, page 41. Joel Conrad suggests asking a lot of questions before hiring a strategic consultant. Managing, page 77.

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### NEWS ANALYSIS

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### Oracle's network computing lineup

#### Product

#### Availability

to 8	
Server software	
Network in a Box	
Oracle Applications 10	July 20, for Oracle8

### QUOTE OF THE WEEK

"It's *The Godfather* approach: 'Let me make you an offer you can't refuse.'"

—Ed Black, President and CEO,  
Computer & Communications Industry Association,  
Washington

See The Internet, page 43

## UP FRONT Midyear check

**T**omorrow marks the midpoint of 1997, which brings to mind two thoughts: 1) the first L. L. Bean Christmas catalog will arrive in less than two months and 2) it's a good time to reflect on the changes at Computerworld over the first half of the year.

Since launching a major redesign in November, we've made many adjustments designed to strengthen our focus on IT leadership. Who are IT leaders? They are the people within organizations who drive the use of technology for business values. They are the people with the vision, confidence and creativity to see opportunity in the application of technology where others don't.

Our news stories are being made more analytical, with product coverage angled toward business relevance and away from bytes and megahertz. Every story filed by a Computerworld reporter now must include a summary paragraph describing the topic's relevance to IT leadership. We've

**Change at Computerworld isn't always dramatic, but it is constant.**

substantially increased our focus on people, expanding coverage of workplace issues and profiling IT leaders. We recently shuffled our technical sections lineup to emphasize Internet and corporate strategy topics. At the top right of the front page each week, you'll find a high-impact story you won't get anywhere else, ranging from offbeat (judoistic document destruction) to in-depth (our profile of Cartier Group) to human interest (judoistic programs). We've launched Special Reports—a major package of feature articles on hot topics. This week, a new monthly section on mobile computing joins our monthly section on data warehousing. We now regularly review user Web sites to mine gems of advice on design and navigation.

Online, news is updated three times daily at [www.computerworld.com](http://www.computerworld.com). Our new Resource Links connect you to Internet information on scores of timely topics. This month, we launched Computerworld Broadcast Center, with a new audio feature every day. Beginning soon, you can get a free, daily E-mail with news, career advice and something offbeat, too.

Change at Computerworld isn't always dramatic, but it is constant because your information needs are evolving. I hope you'll keep your ideas and suggestions coming to me at the E-mail address below.

Paul Gillin, Editor  
Internet: [paul.gillin@cw.com](mailto:paul.gillin@cw.com)



### ► Intelligent agents can sort messages

By Barb Cole-Cornelini

IF YOU THINK your E-mail inbox is overflowing, consider American Financial & Investment, Inc. (AF&I), a financial services firm in Fairfax, Va.

After inviting consumers to learn more about refinancing and home equity loans via a World Wide Web site, the company now pulls into a general mailbox about 1,500 electronic mail messages per week.

To cope, AF&I employs a clerical worker to sift through the flood of E-mail, answer basic queries and forward others to specialized workers.

A recent survey by the Institute for the Future in Menlo Park, Calif., showed that 77% of 972 Fortune 1,000 workers interviewed felt overwhelmed by the number of messages they send and receive each day.

### BETTER CUSTOMER SERVICE

Lifting the burden of unwanted or misdirected E-mail could lead to higher worker productivity and improved customer service, users said.

"We think about 40% of the E-mail we're getting could be handled without human intervention," said Jack Rodgers, president of AF&I. The company is beta-testing Bright Response from Brightware, Inc. in Novato, Calif. Slated to be announced next month, the software responds to E-mail or routes messages to the right person based on criteria set up by information systems.

A certain amount of message filtering is possible with most mail clients. But IS shops said the lack of a standard mail client and the training required to get

users up to speed on more advanced mail features keep workers from taking charge of their in-boxes.

Smart handling of E-mail is becoming more important as companies push that access route as the best way for customers to contact them.

"Customers prefer to get the right answer the first time, so it's really important to route that E-mail to the right person," said Eoin O'Donoghue, a director in the electronic brokerage service at Charles Schwab and Co. in San Francisco.

### \$50,000 TO START

With that in mind, the brokerage next month will roll out a system similar to AF&I's. But it is based on an intelligent agent server from Aptus Software, Inc. in San Diego, which costs about \$50,000 to set up.

O'Donoghue said the system will be most helpful when there is an E-mail crunch, which is common when the stock market drops.

Even on a "normal" trading day, Schwab's staff receives about 5,000 E-mail messages from clients. The system will scan the messages and route them to the appropriate persons. "Our goal is to be more efficient and to use our [people] resources as best we can," O'Donoghue said.

The idea of automated E-mail seems extreme to some but is popular with spammers.

But most of these systems track all the messages they receive and respond to in an archive, which can be accessed by IS. They also tell recipients that they are receiving an automated response.

These systems can cost several hundred thousand dollars, but users are confident that they will recoup costs by lowering head count. A software company that uses the Aptus product estimates its return on investment to be one year or so because it will avoid hiring several highly paid support personnel.

### WIRE FEEDS

At Amoco Corp. in Chicago, many of the messages are a result of the 600 wire services to which the firm subscribes in order to keep tabs on its competitors and the market.

"We've got lots of people here pulling in 200 messages per day," said Joe Jenson, a staff consultant at Amoco.

Amoco is using GrapeVine for Lotus Notes from GrapeVine



Technologies Ltd. in Troy, Mich., which filters and routes much of the data coming in off the wires. "It helps us get through the information pollution," Jenson said. The software runs a pre-established "knowledge chart" to determine who should receive what mail. "We think we can cut those 200 messages down to a more manageable dozen," he said. The software costs about \$28,000 for 1,000 users. □

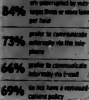
## THE FIFTH WAVE BY RICH TENNANT

Ever the impatient Larry debates the Personal Pet Buckle Assistant/Wireless Fax



### MANAGING CORPORATE E-MAIL

But as E-mail markets our support of Remote Users



Source: Institute for the Future, Menlo Park, Calif.

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# Tax proposal could free up IS contractors

By Julia King

TENS of thousands of freelance computer contractors may soon get the break they have been after for 10 years if Congress passes a proposal that cuts much of the red tape governing their taxes, benefits and livelihoods.

Employers desperate for IS talent also could benefit by gaining easier access to a pool of professionals whom many companies now shun.

"Right now, there are very few companies left that will still take independents. Their major fear is that the Internal Revenue Service will come in and reclassify them as employees," said Mac Sterling, an independent mainframe contractor in Boston.

As a result, many companies will bring in only contractors who are employees of contracting agencies. Others require agencies to verify a worker's independent status, which agencies complain is a time-consuming process that drives up rates and delays placements.

In 1986, Section 1706 of the tax code set 20 guidelines for determining whether workers are employees or contractors.

The tax proposal under consideration in Washington would create a simpler test and require workers to sign a contract promising to take individual responsibility for taxes and any health care or other benefits.

Given the current information systems labor shortage, observers said, the proposal has a good chance of passing. It would significantly reduce the

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► Support File Transmittal of Independent Contractors: [www.irs.com/software/links/ind.html](http://www.irs.com/software/links/ind.html)  
► Top 40 Management Consulting Firms: <http://www.burkley.com/links/top40.html>

hassle factor now associated with hiring contractors.

"It's a fairly simple and clear test that will allow companies and agencies to use contractors without fear of an IRS audit," said Harvey Shulman, an attorney at the National Association of Computer Consultant Businesses in Greensboro, N.C. The 300-member association of high-tech staffing firms is lobbying for the proposal, which may be voted on this summer.

"If IS managers were free to work with independent contractors, projects would get done on time. They'd have a lot more talent to choose from," said Max Striner, director of contracts at Sally Silver Contracts Services, Inc. in Waltham, Mass.

"If you eliminate the government-imposed filters, you could lower the overall cost of consultants by 15%," said Christopher Black, CEO of Advanced Technology Staffing, Inc. in Redwood Shores, Calif. □

## EMPLOYEE VS. CONTRACTOR

**Under current regulations, workers are generally considered employees if they:**

- ◆ Receive training or direction from the employer
- ◆ Must follow set hours of work
- ◆ Work for one employer at a time
- ◆ Don't offer their services to the general public
- ◆ Work on the employer's premises
- ◆ Receive payments of regular amounts at set intervals
- ◆ Can be fired by the employer
- ◆ Can quit work at any time without incurring liability

**Under the proposal, workers are contractors if they:**

- ◆ Sign a contract taking responsibility for their own taxes
- ◆ Don't work exclusively for one company
- ◆ Advertise their services
- ◆ Perform services for a set time
- ◆ Can't quit without incurring damages

Source: IRS Guidelines; Harvey Shulman, attorney for NACCB

# Free speech advocates praise decency ruling

By Sharon MacLis and Maryfran Johnson

IN A RULING hailed by advocates of an unfettered Internet, the U.S. Supreme Court last week ruled that the Communications Decency Act is unconstitutional.

The 7-2 decision struck down provisions banning "indecent" online speech among adults. The measure sought to prevent children from seeing sexually explicit material online by barring the posting of such data "in any manner" that could be accessed by minors.

## DOOR LEFT OPEN

"The Supreme Court said that you can stand up on a soap box in a chat room, and it really is the modern equivalent of the soap box in the [town] common," said Daniel Hillis, vice president of research and development at Walt Disney Co. in Burbank, Calif.

"They said it isn't legitimate to solve this problem in a way

that breaks this engine of free speech for the rest of us," Hillis said.

However, those battling to win in cyberspace will still grapple with a new bill that attacks Internet indecency and also addresses some of the court's objections.

**"Today's opinion defines the First Amendment for the next century."**

— David Sobel, Electronic Privacy Information Center

Sen. Dan Coats (R-Ind.), who sponsored the initial CDA legislation, "will work on reintroducing new legislation using [last week's] ruling as a blueprint," said Erik Hotzma, a spokesman in Coats' press office.

"I think the justices, as they usually do, left the door open to attempts to craft a law that does

not run afoul of the Constitution," said E. Leonard Rubin, a partner at the law firm Gordon & Glackson in Chicago.

Opponents of the measure said they were heartened by the decision.

"This pretty much looks like a total affirmation of everything we hoped for," said Stanton McCandlish, program director at the Electronic Frontier Foundation in San Francisco. "I think it's going to be very difficult for Congress to come up with a 'CDA II' that will pass Constitutional muster."

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## UP FRONT

## Midyear check

**T**omorrow marks the midpoint of 1997, which brings to mind two thoughts: 1) the first L. L. Bean Christmas catalog will arrive in less than two months and 2) it's a good time to reflect on the changes at Computerworld over the first half of the year.

Since launching a major redesign in November, we've made many adjustments designed to strengthen our focus on IT leadership. Who are IT leaders? They are the people within organizations who drive the use of technology for business value. They are the people with the vision, confidence and creativity to see opportunity in the application of technology where others don't.

Our news stories are being made more analytical, with product coverage angled toward business relevance and away from bytes and megahertz. Every story filed by a Computerworld reporter now must include a summary paragraph describing the topic's relevance to IT leadership. We've

**Change at Computerworld isn't always dramatic, but it is constant.**

substantially increased our focus on people, expanding coverage of workplace issues and profiling IT leaders. We recently shuffled our technical sections lineup to emphasize Internet and corporate strategies topics. At the top right of the front page each week, you'll find a high-impact story you won't get anywhere else, ranging from offbeat (electronic domain detectives) to in-depth (our profile of Corning Group) to human interest (artistic programmers). We've launched Special Reports—major packages of feature articles on hot topics. This week, a new monthly section on mobile computing joins our monthly section on data warehousing. We now regularly review user Web sites to mine gems of advice on design and navigation.

Online, news is updated three times daily at [www.computerworld.com](http://www.computerworld.com). Our new Resource Links connect you to Internet information on scores of timely topics. This month, we launched Computerworld Broadcast Center, with a new audio feature every day. Beginning soon, you can get a free, daily E-mail with news, career advice and something offbeat, too.

Change at Computerworld isn't always dramatic, but it is constant because your information needs are evolving. I hope you'll keep your ideas and suggestions coming to me at the E-mail address below.

Paul Gillin, Editor  
Internet: [paul\\_gillin@cw.com](mailto:paul_gillin@cw.com)

## THE FIFTH WAVE

BY RICH TENNANT



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# Tools for E-mail relief

**\* Intelligent agents can sort messages**

By Bob Cole-Gonzalez

**IF YOU THINK YOUR E-mail inbox is overflowing** consider American Finance & Investment, Inc. (AF&I), a financial services firm in Fairfax, Va.

After inviting consumers to learn more about refinancing and home equity loans via a World Wide Web site, the company now pulls into a general mailbox about 1,500 electronic messages per week.

To cope, AF&I employs a clerical worker to sift through the flood of E-mail, answer basic queries and forward others to specialized workers.

A recent survey by the Institute for the Future in Menlo Park, Calif., showed that 74% of 992 Fortune 1,000 workers interviewed felt overwhelmed by the number of messages they send and receive each day.

**BETTER CUSTOMER SERVICE.** Lifting the burden of unwanted or misdirected E-mail could lead to higher worker productivity and improved customer service, users said.

"We think about 40% of the E-mail we're getting could be handled without human intervention," said Jack Rodgers, president of AF&I. The company is beta-testing Bright Response from Brightware, Inc. in Napa, Calif. Slated to be announced next month, the software responds to E-mail or routes messages to the right persons based on criteria set up by information systems.

A certain amount of message filtering is possible with most mail clients. But IS shops said the lack of a standard mail client and the training required to get

users up to speed on more advanced mail features keep workers from taking charge of their inboxes.

Smart handling of E-mail is becoming more important as companies push that access route as the best way for customers to contact them.

Customers prefer to get the right answer the first time, so it's really important to route that E-mail to the right person," said Erin O'Donoghue, a director in the electronic brokerage service at Charles Schwab & Co. in San Francisco.

### \$50,000 TO START

With that in mind, the brokerage next month will roll out a system similar to AF&I's. But it is based on an intelligent agent server from Aptex Software.

Users in San Diego, which come about \$50,000 to set up.

O'Donoghue said the system will be most helpful when there is an E-mail crunch, which is common when the stock market drops.

Even on a "normal" trading day, Schwab's staff receives about 1,000 E-mail messages from clients. The system will scan the messages and route them to the appropriate person. "Our goal is to be more efficient and to use our [people] resources as best we can," O'Donoghue said.

The idea of automated E-mail seems extreme to some but is popular with spammers.

But most of these systems track all the messages they receive and respond to in an archive, which can be accessed by IS. They also tell recipients that they are receiving an automated response.

These systems can cost several hundred thousand dollars but users are confident that they will recoup costs by lowering head count. A software company that uses the Aptex product estimates its return on investment to be one year or so because it will avoid hiring several highly paid support personnel.

### WIRE FEEDS

At Amoco Corp. in Chicago, many of the messages are a result of the 600 wire services to which the firm subscribes in order to keep tabs on its competitors and the market.

"We've got lots of people here pulling in 200 messages per day," said Joe Jensen, a staff consultant at Amoco.

Amoco is using Grapevine for Lotus Notes from Grapevine



Technologies Ltd. in Troy, Mich., which filters and routes much of the data coming in off the wires. "It helps us get through the information pollution," Jensen said. The software reads a pre-established "knowledge chart" to determine who should receive what mail. "We think we can cut those 200 messages down to a more manageable dozen," he said. The software costs about \$28,000 for 1,000 users. □

### MANAGING CORPORATE E-MAIL

Out of 912 workers surveyed at Fortune 1,000 companies:

**84%** are interrupted by messages three or more times per hour

**73%** prefer to communicate externally via the telephone

**66%** prefer to communicate internally via E-mail

**69%** do not have a communication policy

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**\*TOO MANY JOBS, NOT ENOUGH PEOPLE—PAST STORIES:** Looking for information about the job situation in IS? Check out links to our past stories. ([www.computerworld.com/features/9706jobhorst\\_hist.html](http://www.computerworld.com/features/9706jobhorst_hist.html))

## Tax proposal could free up IS contractors

By Julia King

TENS of thousands of freelance computer contractors may soon get the break they have been after for 10 years if Congress passes a proposal that cuts much of the red tape governing their taxes, benefits and livelihoods.

Employers desperate for IS talent also could benefit by gaining easier access to a pool of professionals whom many companies now shun.

"Right now, there are very few companies left that will still take independents. Their major fear is that the Internal Revenue Service will come in and reclassify them as employees," said Mac Swerling, an independent management contractor in Boston.

As a result, many companies will bring in only contractors who are employees of contracting agencies. Others require agencies to verify a worker's independent status, which agencies complain is a time-consuming process that drives up rates and delays placements.

In 1986, Section 1706 of the tax code set 20 guidelines for determining whether workers are employees or contractors.

The tax proposal under consideration in Washington would create a simpler test and require workers to sign a contract promising to take individual responsibility for taxes and any health care or other benefits.

Given the current information systems labor shortage, observers said, the proposal has a good chance of passing. It would significantly reduce the

### COMPUTERWORLD

For facts and other related links, point your browser at [www.computerworld.com/links](http://www.computerworld.com/links)

Support Fair Treatment of Independent Contractors: [www.ubc.com/~software/csla/isa.html](http://www.ubc.com/~software/csla/isa.html)  
Top 40 Management Consulting firms: <http://www.berkeley.edu/~biggs/jmc.html>

hedge factor now associated with hiring contractors.

"It's a fairly simple and clear test that will allow companies and agencies to use contractors without fear of an IRS audit," said Harvey Shulman, an attorney at the National Association of Computer Consultant Businesses in Greensboro, N.C. The 300-member association of high-tech staffing firms is lobbying for the proposal, which may be voted on this summer.

"If IS managers were free to work with independent contractors, projects would get done on time. They'd have a lot more talent to choose from," said Sam Steiner, director of contracts at Sally Silver Contracts Services, Inc. in Waltham, Mass.

"If you eliminate the government-mandated filters, you could lower the overall cost of consultants by 15%," said Dominique Blace, CEO of Advanced Technology Staffing, Inc. in Redwood Shores, Calif. □

### EMPLOYEE VS. CONTRACTOR

**Under current regulations, workers are generally considered employees if they:**

- Receive training or direction from the employer
- Must follow set hours of work
- Work for one employer at a time
- Don't offer their services to the general public
- Work on the employer's premises
- Receive payments of regular amounts at set intervals
- Can work for by the employer
- Can quit work at any time without incurring liability

**Under the proposal, workers are contractors if they:**

- Sign a contract taking responsibility for their own taxes
- Don't work exclusively for one company
- Advertise their services
- Perform services for a set time
- Can't quit without incurring damages

## Buy me some notebooks and Cracker Jacks

major league baseball, the bats are still wooden and the balls are still cowhide. Talent scouts still scribble in notebooks. But now the notebooks run custom software on Pentiums. And back-end databases crunch numbers to box players' team rankings.



It's with astronomical player salaries. Read how the Seattle Mariners' Sandy Stumpff and other pitchers high-tech baseball.

## Free speech advocates praise decency ruling

By Sharon MaJis and Marilyn Johnson

IN A RULING hailed by advocates of an unfettered Internet, the U.S. Supreme Court last week ruled that the Communications Decency Act is unconstitutional.

The 7-2 decision struck down provisions banning "indecent" online speech among adults. The measure sought to prevent children from seeing sexually explicit material online by banning the posting of such data "in any manner" that could be accessed by minors.

### DOOR LEFT OPEN

"The Supreme Court said that you can stand up on a soap box in a chat room, and it really is the modern equivalent of the soap box in the [town] commons," said Daniel Hillis, vice president of research and development at Walt Disney Co. in Burbank, Calif.

"They said it isn't legitimate to solve this problem in a way

that breaks this engine of free speech for the rest of us," Hillis said.

However, those battling to rein in cybersex will try again with a new bill that attacks Internet indecency and also addresses some of the court's objections.

**"Today's opinion defines the First Amendment for the next century."**

— David Sobel, Electronic Privacy Information Center

Sen. Dan Coats (R-Ind.), who sponsored the initial CDA legislation, "will work on reintroducing new legislation using [last week's] ruling, so a blueprint," said Erik Holtzer, a spokesman in Coats' press office.

"I think the justices, as they usually do, left the door open to attempts to craft a law that does

not run afoul of the Constitution," said E. Leonard Ruben, a partner at the law firm Gordon & Gluckson in Chicago.

Opponents of the measure said they were heartened by the decision.

"This pretty much looks like a total affirmation of everything we hoped for," said Stanton McCandless, program director at the Electronic Frontier Foundation in San Francisco. "I think it's going to be very difficult for Congress to come up with a 'CDA II' that will pass Congressional muster."

This marks the first time that the nation's highest court ruled that the First Amendment protects Internet communications.

"Today's opinion defines the First Amendment for the next century," said David Sobel, legal counsel to the Electronic Privacy Information Center, in a statement issued after the ruling. Tim Berners-Lee, director of the World Wide Web Consortium in Cambridge, Mass., said there can be technical solutions to Internet social problems such as pornography and privacy invasions.

"Technology seemed to produce a threat," he said, "but in the same way, technology is producing solutions." □

# Scaling up Win NT takes planning

► Segmenting domains, boosting WAN links key

By Laura DiDio

PLAN, PLAN and plan some more.

That is the advice of nine Fortune 1,000 businesses that have scaled and deployed Microsoft Corp.'s Windows NT Server in support of thousands of users.

The early users said they planned for six to 12 months, benchmarked for roughly three months and implemented pilot networks before the actual rollout. They also made detailed outlines of their sites and how

the sites would need to be segmented in terms of the servers, applications and power users. When planning their Windows NT deployments, the users invariably increased the capacity of their wide-area links to accommodate the expected rise in data traffic.

A simple but significant step for all the businesses was to use the Dynamic Host Configuration Protocol to automate configuration and management of thousands of TCP/IP addresses (see story at right).

"That saved me untold hours of administrative nightmares," said Rod Matlock, director of banking services at CGI. The company is piloting core banking online transaction processor systems on Windows NT Server and SQL Server 6.5 for non-stop, around-the-clock processing, Matlock said.

"Coping planning was key. We segmented our networks into 75 Windows NT Servers running on Compaq [Computer Corp.] and Dell [Computer Corp.] hardware. We also installed frame-relay and [Integrated Services Digital Network] connections to alleviate bottlenecks," said Bill Teague, director of product management at the Nasdaq Stock Exchange in Washington.

Nasdaq uses Windows NT as the basis for its three World Wide Web sites, Nasdaq.com, Nasdaq Online and MarketSite. Together, the sites support more than 25,000 users, who generate 5 million hits per day.

Teague said the setup has been fine so far. "We haven't stressed the limits. Those we do expect our SQL Server database — which is presently 800 bytes — will grow as we expand our data offerings," he said.

To date, the biggest obstacle to implementing Windows NT as the chief or sole network op-

## Tips for large NT deployments

Large-scale Windows NT Server deployments of 5,000-plus users can be problematic for even experienced network administrators. David Sheridan, an instructor at Tech-Tech International, Inc. in Arlington, Va., offers the following tips:

- Make sure you have the appropriate flat physical connections between sites. For large installations that usually mean frame-relay or fractional T1 links.
- If your Resource Domain is physically remote from the Master Domain, install a backup domain controller from the Master Domain, at the same location as the Resource Domain. That will reduce log-in traffic over the WAN.
- To triple the number of log-on requests that a Domain Controller can handle, configure the server service to maximize throughput for network applications.
- Spread virtual memory across several physical local hard drives. That will increase performance by spreading access to virtual memory.
- For enhanced security, implement the Password utility in the Windows NT 4.0 Resource Kit. That lets administrators secure the Administrator account from hackers.
- Use the Dynamic Host Configuration Protocol to automatically configure and administer TCP/IP workstation addresses.

—Laura DiDio



"We eliminated the complexity and headaches [of] multiple domains by not establishing trust relationships."

## Start-up will outsource 'net transactions

By Mitch Wagner

A NASHUA, N.H., start-up last week launched an outsourcing service for a key part of Internet commerce: processing transactions and payment over the 'net.

The MerchantTranf service from Internet Commerce Services Corp. (ICSM), was designed to help companies that want to sell goods and services over the Internet but don't want the hassle or expense of connecting a World Wide Web site to credit-card verification and fulfillment systems.

Users of the service can run their Web sites anywhere — in their own company or at a third-party hosting service — and connect the site to iCom's service. iCom will take customer orders, process the payment and connect to back-end fulfillment systems to make sure the product is delivered.

"This helps us get away from the cost of bringing the technol-

ogy in-house, which is pretty steep," said Mildred Bradley, information services manager at Houghton Mifflin Co. in Boston.

"Also, the technology is changing, and I don't know whether the landscape has solidified yet. If we buy in a particular technology, who knows six months from now whether it'll be the right choice? With a service provider, that's their concern rather than ours," Bradley said.

### INEXPENSIVE E-COMMERCE

Michael Garala, an analyst at Forrester Research, Inc. in Cambridge, Mass., said the service gives users an inexpensive, un-complicated way of turning an online brochure into a full-service electronic commerce site.

"It helps companies avoid paralysis, if they've been holding off on putting up a full transaction site because it looks like

it'll be a huge investment," Garala said.

The service works this way: A merchant's customers browse an online catalog and click on a "Buy now" button when they are ready to buy. That causes the merchant's Web server to send an encrypted message to iCom's servers, listing the item the user wishes to buy, its price and other ordering information.

The fulfillment service might be a Web server or a third-party company hired by the merchant to fulfill orders.

iCom supplements its service using Transact servers from Open Market, Inc. in Cambridge, Mass.

MerchantTran pricing is based on a per-transaction fee. iCom charges 2% of the value of goods and services bought through the service, with a minimum of 25 cents per transaction and a maximum of \$4. The minimum monthly charge is \$450. The service is available now. □

erating system has been its lack of a hierarchical directory service database to centrally manage and monitor geographically dispersed networks. That hasn't changed — and won't — until Microsoft ships Windows NT 5.0 with its Active Directory next year.

Consequently, Microsoft advises users to construct our domain structure whenever possible or to minimize the number of domains in the organization.

Domains function as super workgroups that share a bindery list of users. They provide administrators with a centralized list and control of user accounts and security. But they don't offer a view of the entire network as Novell, Inc.'s Novell Directory Services does.

"After a massive, yearlong planning effort," the Kentucky Department of Education's Office of Education Technology, the organization constructed a hybrid master domain structure to support 700,000 students, teachers and administrators statewide, said David Couch, director of the agency.

The group built a Single Master Domain for 600 administrators. It then constructed a Multiple Master Domain model among its 676 school districts.

"But we eliminated the complexity and headaches associated with multiple domains by not establishing trust relationships among the various school districts," Couch said.

"This approach does limit our functionality somewhat but makes life much simpler from an administrative standpoint. It's taken us less than a day to install Windows NT Server and Exchange in 15 districts."

Craig Ashpazz, Windows NT architecture manager at MCI Communications Corp., agreed. "The trick is to only establish trust rights on a need-to-know basis. And this increases security," he said.

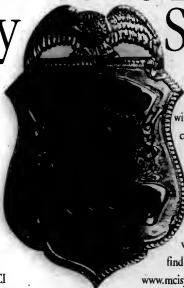
### FIND POWER USERS

Steve Sommer, vice president of information systems at Hughes, Hubbard & Reed, a law firm in New York, said he paid special attention to the applications being run in each department and identified the power users.

The firm gave certain departments, such as accounting, their own Windows NT Server. About a thousand users at five locations, including London, the law firm also found it necessary to "fatten" the wide-area pipes.

"We increased the size of our frame-relay port connections from 56K bps/sec. to 128K bps/sec. to 512K bps/sec. at the branch offices and 32K bps/sec. at headquarters," Sommer said. □

# MCI Systemhouse Makes USA's Largest City



Everyone's heard about the dramatic crime drop in America's largest city. A unique relationship between Forté, the International Public Safety Group of MCI Systemhouse and America's largest police department contributed to this. Just 12 months ago, MCI Systemhouse used the Forté Application Environment™ to create an enhanced 911 Emergency Response System. Built to maintain 99.999% operational reliability, it provides reliable service 24 hours a day,

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# E-commerce shoppers need tools to help themselves

By Mitch Wagner  
SAN FRANCISCO

**WINNERS** In electronic commerce, it's the companies that provide the tools for their customers to serve themselves, and users at the Business On-Line '97 conference last week.

Online consumers and business-to-business customers aren't looking to have people make decisions for them. Internet-commerce experts said. Instead, they want to know which products and services are least expensive, highest in quality and best-suited to their needs and desires. Online customers then make buying decisions based on that information.

"We're not selling people what books to buy; we're giving people the information to help

them decide what to buy," said Mark Bresler, vice president of marketing at Amazon.com, Inc. in Seattle.

Online businesses need to know the kinds of information their customers are looking for and be able to provide that information inexpensively and conveniently experts advised.

## WHAT TO READ

At Amazon.com, as well as competitor Barnes & Noble, Inc. in New York, online customers get book reviews, recommendations for what books to buy and information from authors and publishers.

At the Sabre Group's Internet site, customers are looking for travel bargains. "They like to search and search and find the lowest fares," said Terrell Jones,

president of Sabre Interactive in Dallas.

And at PCOrder.com, Inc. in Austin, Texas, software agents guide customers through the often-complicated process of "needs analysis" before buying computer equipment.

The rewards for companies that provide users with self-service tools include customer loyalty.

"PC-based investments empower customers with confidence that they can control their own investments," said Karen Askey, vice president of electronic brokerage at Charles Schwab & Co. in San Francisco.

Giving customers tools to make decisions can also save companies' time. At Fidelity Investments, the online site provides customers with invest-

ment information. Customers can't buy investments online—federal regulators require handwritten signatures for that—but they can download the necessary forms, print the forms and send them to Fidelity, said Zachary Leonard, vice president of interactive programming.

That convenience vastly shortens the sales cycle.

Another critical success factor for electronic commerce is to exploit the unique service options of the online medium, the executives said. Rather than simply replicating information available in the real world, online businesses need to differentiate themselves.

At the Sabre Group, for example, travelers with paggers who book their travel online can ask to be paid if a flight is late. That's handy for rushed business travelers and for friends and family members picking travelers up at airports.

That kind of differentiation is essential for online businesses' survival, Jones said. He noted only 0.5% of travel bookings are done online.

## ABOUT THE COMPANIES

**PCOrder.com, Inc.** sells computer and computer equipment online. It provides software and services to help computer companies do the same.

**Charles Schwab & Co.** provides investment information and investment trading online. The company has a business unit devoted to electronic investors.

**Amazon.com, Inc.** offers 2.5 million best titles online. Revenue for 1996 was \$26 million; the company matched that amount during the first quarter of 1997.

"My biggest competitor isn't another online travel service—it's telephone," Jones said. "If we're going to grow the business, we need to provide other things that you can't get in the real world."

The Business On-Line conference was sponsored by Giga Information Group, a research firm in Cambridge, Mass. □

# Web site gives pay-per-view a fighting chance

## ► Viacom taps Internet to promote boxing match

By Matt Hamilton

VIACOM International, Inc. capitalized on the interactive power of the World Wide Web to boost the popularity of Saturday's Evander Holyfield-Mike Tyson fight on pay-per-view television. "Put your modem where your mouth is" is how developers of [www.holyfieldtyson.com](http://www.holyfieldtyson.com) tried to lure visitors to vote online in real time for the winner of each round of the WBA heavyweight championship boxing match that Viacom also sold on pay-per-view TV for about \$40.

Officials at ringside in Las Vegas were to then announce the collective judgment of the viewers at home. Site managers anticipated more than 2 million hits during the fight.

"Instead of yelling at the TV, you [could] get online and say what you think," said Jeff Morris, senior vice president of new media and technology development at Showtime Networks, Inc. in New York, which created the site and was one of the cable TV distributors. Viacom owns Showtime and other entertainment ventures.

"We have two business objectives with the site: to create awareness of the pay-per-view

fight and to enhance the experience of a pay-per-view purchase," Morris said.

David Tuckelson, an analyst at

Meta Group, Inc. in Stamford, Conn., said he couldn't think of where online voting in real time was used better by Web developers to create, in essence, a group chat experience.

"They're leveraging the technology and medium for what it is and not replacing the pay-per-view," Tuckelson said. "I don't know whether I'd stay online for the entire fight, but you could go off line and then come back and comment. 'Yeah, Tyson was robbed!' and vote. In that way, it's almost more valuable than being there."

The technology behind the online voting was created by a team led by Steve Plastik, vice president of technical operations and interactive services at Viacom.

## \$1 MILLION PRICE TAG

Plastik said it costs \$1 million per year to operate the systems that Viacom uses to run various Web sites for fight promotions, Nickelodeon and Blockbuster Video, among others. Nine servers handle all the sites, and traffic is managed by LocalDirector load-balancing software from Cisco Systems, Inc. About 70 Unix workstations connect to a Sybase, Inc. database are also part of the system.

Visitor interest has grown dramatically since the first fight that featured voting—held in March of last year—and since last November's first match between Holyfield and Tyson, Morris said. There were about

300,000 "discrete visits" and 1 million hits before the March 1996 fight, but the numbers jumped to about 300,000 visitors in about 20 minutes during the fight—more than 2 million hits—in the 30 days before last November's fight, Morris said.

The sites are geared with the upcoming matches in mind and filled with video clips of fighters trash-talking to one another and chat rooms for fans to discuss previous fights.

Viacom doesn't try to make money from its fight promotion sites, although the current site has sponsors, Morris said. "Viacom amortizes the cost of doing this over a lot of sites, and we want to add value to the pay-per-view," he said. "We're exploring a longer-term vision here."

Viacom's survey research shows that nearly half of U.S. households have a PC and a TV in the same room, which makes the voting concept viable, Morris said. □



Saturday's championship fight between Mike Tyson (left) and Evander Holyfield, a rematch of last year's fight pictured above, drew fans online

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# Pilot projects goose interest in smart cards

By Mitch Wagner

**WISN** Regina delBarco stops for breakfast on her way to work in her downtown San Francisco office, she doesn't pay for her coffee and croissant with cash. Instead, she uses a 21st-century payment mechanism — a smart card.

delBarco, an operations manager at Wells Fargo & Co., is one of 800 employees in San Francisco who are participating in the bank's pilot program. Twenty small businesses are also taking part. Wells Fargo is testing the use of smart cards to replace credit cards and cash for payments with local merchants.

"It's great because I don't have to fumble around for change or the right bill," delBarco said.

Although smart cards have been talked about for years, they are only now gaining momentum in the business world. Many of the biggest financial institutions in the country are planning or launching large-scale pilot projects, including some that use smart cards

for payment-processing on the Internet. Those projects will determine whether smart cards end up in every consumer's pocket or joins legions of other ideas that seemed fascinating to futurists but failed in real life.

In the latest developments, Hewlett-Packard Co. plans in August to launch a new chip-based card that includes a built-in smart-card reader. AT&T Corp.'s Universal Card unit plans to launch, along with selected merchants, a trial of Internet payments using smart cards. Improved security and lower transaction costs are the driving forces behind smart cards. AT&T officials said.

For their part, banks are seeing an opportunity to start collecting revenue from the kinds of transactions now handled with cash. Some 80% of transactions in the U.S. today are cash, valued at less than \$50 each, said Thomas Kilcoyne, vice president and general manager of the consumer systems division at VeriFone, Inc., which offers credit-card transaction services and smart cards.

Smart cards have caught on more rapidly abroad. Purchases can be managed entirely at the point of sale without requiring a constant connection to a host system for verification. That is an important point overseas, where telecommunications costs are higher. Visa International, an organization that manages about 40 chip-related pilots in 21 countries, including Australia, Hong Kong and Japan.

## NO CRYSTAL BALL

But in the U.S., where telecommunications is relatively less expensive, the future is still unclear for smart cards.

"We expect to learn a lot from these pilots," said Jeffrey Diskin, president and chief operating officer at Hilton HHonors Worldwide. The customer loyalty unit of Hilton Hotels Corp. in Beverly Hills, Calif., is testing smart cards at eight hotels in the U.S. "We expect to learn whether the smart-card platform can support what we want to do," Diskin said.

In a pilot test with American Express Co., Hilton has frequent customers use smart cards to check in and out at lobby kiosks, bypassing the front desk. Room preferences and Hilton's frequent-customer HHonors records are stored on the smart card.

AT&T's Universal Card unit has been testing smart cards since November at its corporate campus in Jacksonville, Fla. About 400 employees use the card at the company cafeteria, gift shop and cleaners.

One of the biggest trials of smart cards in the U.S. is in New York City — the allent Upper West Side of Manhattan — where 50,000 consumers and 500 merchants will receive cards in October. The tests are being done by the Citibank unit of Citicorp, The Chase Manhattan Bank Corp., Visa U.S.A. Inc. and MasterCard International, Inc. The goal is to gauge

## COMPUTERWORLD

For those and other related links, visit your browser at:  
[www.computerworld.com/3023smartcards.html](http://www.computerworld.com/3023smartcards.html)

Smart card readings and resources:  
[www.let.com.edu/guide/ig-35.html](http://www.let.com.edu/guide/ig-35.html)

The Smart Card Forum:  
[www.smartcard.com](http://www.smartcard.com)

consumer acceptance and test how well different companies' smart cards will be able to work together, a Visa spokesman said. □



Regina delBarco, an operations manager at Wells Fargo & Co., is one of 800 employees in San Francisco who are participating in the bank's pilot program.

## Smarter than they look

Smart cards look like conventional credit cards but have small microprocessors rather than magnetic strips. They can store information such as cash balances, hotel preferences, frequent flyer numbers or other data and save more easily reusable than magnetic-stripe cards.

The cards can be "charged" with financial data at kiosks, and then consumers can spend the money at participating merchants. With a magnetic-stripe card, most of the actual information is stored on a host system, which the card has to contact over a network. With smart cards, the relevant information is on the card, and the local terminal performs whatever computing needs to be done.

Because the smart card can work locally, it can work faster, reducing network bandwidth, increasing transaction speeds and improving flexibility, proponents of the technology say.

— Mitch Wagner

## SHORTS

### Senators ask for Microsoft probe

Three senators have asked the Federal Trade Commission to investigate whether Microsoft Corp. has violated its 1995 Consent Decree. All three — Conrad Burns (R-Mont.), Ted Stevens (R-Ala.) and Craig Thomas (R-Wyo.) — say they have received numerous antitrust and restraint of trade complaints against Microsoft. Two other senators, Rod Grams (R-Wash.) and John McCain (R-Ariz.), responded with a letter to colleagues asking them to leave Microsoft alone.

### CBS outsources data centers

CBS has outsourced its data processing and network management services to Systems Management Specialists (SMS) under a five-year, \$100 million contract. Under the agreement, Santa Ana, Calif.-based SMS will acquire CBS's data centers in Secaucus, N.J., and Shelton, Conn. The facilities support television and radio stations for the New York-based broadcasting network.

### Limited Exchange beta kicks off

Microsoft has begun a limited beta test of the next release of its Exchange messaging server, code-named Cimarron. The software, due by the end of the

year, will support an unlimited message store and add Internet Message Access Protocol 4, Version 3.0 of the Lightweight Directory Access Protocol and Secure Multipurpose Internet Mail Extensions for encryption.

### Fly the friendly Web

United Airlines in Chicago last week announced United Connection, software that lets users search for the cheapest fare on a flight by United and other airlines. A feature called SuperShopper lets users search through up to five consecutive departure and return dates in a 24-hour period. A free disk or CD-ROM is available by calling (800) 482-2696. The download is available at [www.ual.com](http://www.ual.com).

### Sun battles bugs

Sun Microsystems, Inc. is working on a patch for a problem in the Internet protocol for its Solaris operating system. But the bug has been causing significant slowdowns across the World Wide Web. The bug causes slowdowns whenever a user with a PC running Windows and using Microsoft's TCP/IP protocols accesses the Solaris Web server. A Sun spokesperson would only say that the patch is "coming soon." Sun also is coming

out with a patch for a Java bug that gave applet authors access to the browser space of any user who downloaded it. According to a spokesperson for Sun, the patch will come out as part of the release of its Java Development Kit 1.1.5, which is due early this week. The patch also can be downloaded from Sun's Web site at [www.sun.com](http://www.sun.com).

### McAfee in line for DOD contract

McAfee Associates, Inc. is expected to be the primary vendor for a multimillion-dollar contract that the Department of Defense will award this week. The million-plus set pact is one of the largest antivirus awards in the industry. The Santa Clara, Calif., company declined to comment on the contract.

### Updating federal computer use

The chairman of the House Security Committee has proposed the first major overhaul of the Computer Security Act in a decade, with provisions to promote the use of commercial technology in government and evaluate available foreign encryption software. It allows government agencies to use popular private-sector encryption technology instead of a separate federal standard.

# Retailers dump big iron for client/server

► Mainframe/year 2000 issues and the need for better data analysis prompt change

By Randy Weston

RETAILERS ARE starting to ditch their trusty mainframes for a new breed of off-the-shelf client/server systems geared toward their needs.

The reasons include an intensely competitive business climate that requires desktop analysis of data and the fast-approaching year 2000 problem with legacy mainframes.

In recent months, client/server software leaders SAP AG and PeopleSoft, Inc. have rolled out enterprise resource planning (ERP) systems designed for the retail market.

SAP teamed up with 80 retail consultants and 30 beta testers — including wholesale grocer Nash Finch Co. in Minneapolis — to develop its R/3 retail product. R/3 for retail was released last month after two years of development.

**"It's no longer a game of keeping track of transactions. It's now a game of analytics."**

**— Judy Newdom, Computer Sciences Corp.**

Patti Gill, director of future systems at Nash Finch, said her company needed to fix a year 2000 problem and streamline its ordering process with a robust, enterprise-wide system. "That retail customer piece was what was missing previously in the SAP product," she said. "So, until recently, we wouldn't have been able to select R/3."

PeopleSoft, in Pleasanton, Calif., took an easier route. It teamed up with Alameda, Calif.-based Intrepid Systems, Inc., a longtime fixture in the retail industry. Intrepid's retail system is being rebuilt with PeopleTools and tied to PeopleSoft's well-established human resources and financial systems. It is due for general release at year's end.

## MAINFRAME INVESTMENT

Many retailers waited until now to take on client/server to give the technology time to mature, analysts said.

"In the beginning, client/server was not looked at as something that could handle retail's transaction volumes. And retailers' investment in mainframe technology was so huge," said Judy Newdom, a principal at Computer Sciences Corp.'s retail practice in Newton, Mass.

That has since changed. Besides costly year 2000 conversions, Newdom said, the client/server trend also is being driven by end-user demand for graphical interfaces and systems that operate more like their home PCs.

And increasing competition from industry giants such as Wal-Mart Stores, Inc. is forcing retailers to look to technology to gain a competitive edge.

"It's no longer a game of keeping track of transactions," Newdom said. "It's now

a game of analytics."

Still, the new ERP systems aren't meeting the needs of all retailers. Green Mountain Coffee, Inc. in Waterbury, Vt., was willing to take on PeopleSoft's man-

ufacturing module but found that Intrepid's retail system lacked key functions.

"We are most interested in having the ability to collect sales data, to track inventory throughout our stores and have re-

porting capability," said Peter Mooney, Green Mountain's head of retail systems.

"We would love to find a [packaged] retail system out there that has what we are looking for [and] that would integrate in to PeopleSoft easily," he said.

The Intrepid system mostly provides decision-support and warehouse management tools for retailers — functions that Green Mountain already gets from PeopleSoft's manufacturing module. □



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# Microsoft fixes 'net server security hole

By Mitch Wagner and Sharon Machlis

MICROSOFT CORP. has posted a patch for its Internet Information Server (IIS) Versions 2.0 and 3.0 that fixes a security hole capable of shutting down an Internet server that runs the software.

A computer consultant discovered the glitch last week — and briefly brought down Microsoft's World Wide Web site — while trying to discover the maximum-length uniform resource locator (URL) that IIS would accept.

It turned out that URLs ranging from

4K to 8K bytes can bring down an IIS server. Hackers, therefore, can write software to generate random lengthy URLs to try to stall a server that runs IIS.

The incident is the latest in a cycle of reports about bugs in Internet software. A hacker typically discovers a bug in Mi-

crosoft or Netscape Communications Corp. software; the bug is widely publicized, and then the vendor posts a fix to its Web site that users can download a few days later.

That cycle is a waste of time, said user Timothy Andrews, editor and executive director of enterprise products at Dow Jones Interactive Publishing in Princeton, N.J. He called on vendors to distribute software that can be automatically updated from the vendors' sites.

"I don't want to have to read trade publications to find out what kind of software patch I need on my server," Andrews said. "The software should upgrade itself seamlessly off the network like AOL." The America Online, Inc. client software will automatically download upgrades of itself and install those upgrades when they are ready.

## TO FIX OR NOT TO FIX

In apparently contradictory advice to users, Microsoft's Market Bulletin advises customers to apply the patch, but a Knowledge Base article posted at the Microsoft site cautions that the fix hasn't been fully tested. It suggests that users who aren't "severely impacted by this specific problem" should wait for Microsoft's next service pack for a fix.

The URL glitch was part of a bad week overall for Microsoft's Web site, as many users complained they couldn't get into the site. Microsoft said those problems mostly were caused by excessive user demand rather than the hacker attack.

In response, Microsoft is tripling its Web server capacity and adding mirror sites in Tokyo and London to alleviate the traffic jams resulting from 80 million hits per day, Microsoft executives said.

"Many of those accesses came from international customers using slow lines, which created further overhead," said Mike Nash, director of Microsoft's infrastructure systems.

Adding two Compaq Computer Corp. ProLiant servers will bring the information closer to international Web users and eliminate the need to go through slow trans-Atlantic telephone lines to access the site. That will free up capacity on the existing server at Microsoft's Redmond, Wash. headquarters, Nash said.

To avoid further Web snafus, Microsoft has contracted with several survey organizations to monitor site performance. □



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## WWW

The patch to the security hole is at <http://ftp.microsoft.com/Security/Internet/WWW/public/fixes/ntsp3/fix-4a>

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## Comptroller leads tech charge

CONTINUED FROM COVER 1

Spill some coffee, there go your records.

A veteran legislator with an eye on higher office, Didrickson had campaigned on a promise to overhaul the state's creaky financial management system. When the Legislature refused to fund a statewide systems overhaul, she switched to Plan B, entering into a lease/purchase agreement for hardware and software for her own operation. She will pay for the lease in future years with money the Legislature will appropriate.

"The fact [that] she's going to build it and then bring others on board is a good thing to do. The fact [that] she's got the guts to do that is impressive," said John Kost, a former chief information officer for the state of Michigan and now a senior vice president at PSI State & Local, a market research and consulting firm in McLean, Va. "That shows leadership."

"Rather than sit around and cry [to the Legislature], I'm serious. I need the money" to solve her year 2000 problem, Didrickson got the money herself.

**"The fact [that] she's got the guts to do that is impressive. That shows leadership."**

— John Kost, former Michigan CIO

said Linda Cohen, an analyst at Gartner Group, Inc. in Stamford, Conn. "It's a great example" for other government officials, she said.

Knowing that real cost savings would come only when all state agencies can electronically manage and transfer money, Didrickson lobbied other state agencies and the governor to adopt the same financial package. She estimated that the common systems and the associated streamlining of work will result in one-time savings of \$125 million and annual savings of \$25 million thereafter.

### EYES ON GOVERNMENT

And in a move sure to please voters, she created a World Wide Web-enabled data warehouse that will make it easier for any one to track how well state agen-

When Loleta Didrickson became Illinois comptroller in 1995, Step 1 was to replace the oldest state financial management system in the U.S.



cies handle everyday chores such as bill collection. "When you put some sunshine on that, agencies will start paying more attention to accounts receivable," Didrickson said.

Didrickson, a 55-year-old, four-term veteran of the Illinois Legislature and a former state cabinet member, said she is a politician, not a technocrat. But in her 1994 campaign for comptroller, she said, "I ran on a very unsexy platform" of changing how the state handled its \$35 billion budget. When she became comptroller in January 1995, Step 1 was to replace the oldest state financial management system in the country.

That system cost \$30,000 per month to maintain and would have cost

another \$4.5 million to make it year 2000-compliant. What is more, Unisys Corp. in Blue Bell, Pa., dropped support in April, making parts and service even harder to find.

The Legislature approved \$2.5 million for initial work on a new system but balked at the cost of a statewide replacement plan. Didrickson is spending \$19.5 million to upgrade her own financial management system. At the same time, she uses newsletters and informational meetings to lobby other state agencies to adopt the package.

Didrickson said she has won converts through examples, including eliminating money-wasting paperwork such as mailing her own office 94,000 checks per year just to transfer money between accounts.

"There are an awful lot of

agencies who want to be able to use our system," she said. Although she doesn't have a timetable, Didrickson is working "on a weekly, if not daily, basis" with Gov. Jim Edgar to push her standardization project — and the associated cost savings — statewide.

Under her original, more ambitious plan, the state's central IS organization would have run the new Statewide Accounting Management System (SAMS). Because the original implementation is limited to the comptroller's office, Didrickson built her

own data center with an IBM mainframe and an AS/400.

As the backbone of SAMS, Didrickson chose Advantage 2000 from American Management Systems, Inc. (AMS) in Fairfax, Va., running on an IBM mainframe. The system was already used in 18 states and is year 2000-compliant.

As other agencies move to adopt SAMS, consultants from AMS are working with the central IS agency on interfaces to feed data from those agencies' systems into SAMS, said Terry Graham, a principal at AMS. □

## Warehouse delivers scoop on spending

As an Illinois state representative in 1983, Loleta Didrickson was the first legislator to get a computer. But she still remembers "always working in a vacuum, in an absence of information" while voting on budget issues.

That is what drove Didrickson, now the state's comptroller, to include a Web-enabled data warehouse as part of a new state financial management system set to go into production this week.

State officials, taxpayers, vendors and members of the press will be able to access the warehouse. It will offer a wide range of information, including vendors that are doing business with the state, the status of state contracts, how much the state is collecting through lotteries and how much it spends on education.

Many states are working to make data accessible to the public, but the Illinois system is more ambitious and further into production than the others, observers said.

The warehouse now contains only 150MB bytes of data, summarizing more-detailed information that is still stored in the state's legacy financial management system, said Terry Graham, a principal at AMS in Fairfax, Va., which developed the warehouse.

Most of the 8C- to 10C-bytes of data that will eventually be stored in the warehouse will come from the Advantage 2000 financial system, which runs on the same IBM mainframe as the warehouse, he said.

Using the Cold Fusion Web development tool from Allaire Corp. in Cambridge, Mass., AMS created different interfaces for the various types of users who access the site. One of the biggest challenges, in fact, was creating a glossary of terms such as "fund accounting" or "activity codes" for Web surfers who are diving in to the state budget for the first time, said Rob Chin, senior principal at AMS.

— Robert L. Schaefer

## Study: Boost E-filing to cut error rates

By Sharon Machlis

APRIL 15 could become just another day on the calendar, and not the dreaded tax filing deadline, as a plan to overhaul the Internal Revenue Service announced last week is adopted.

A proposal to vastly boost electronic income tax filings includes a provision to change the April 15 due date to June 15 for electronic returns (paper versions would be pushed to May 15). Costs and error rates are dramatically lower for electronic returns.

"The recommendation is part of the final report of the National Commission on Restructuring the IRS, released last week."

That report also backs an IRS technology upgrade blueprint released in May, aimed at turning around the off-criticized tax system modernization program, which critics said had little to show for the billions of dollars in expenditures.

The panel called for the IRS to link technology and business objectives better as part of an effort to improve service to taxpayers and make the agency more efficient. □



SAMS has different interfaces supporting the different groups of users who access it

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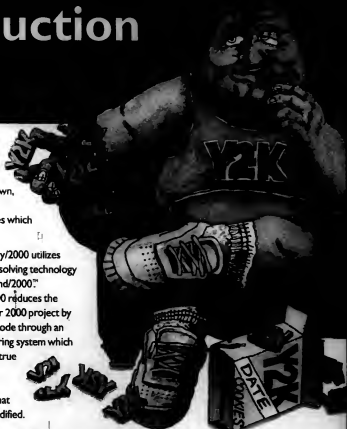
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# Major brokerages play catch-up with online trading upstarts

► **Wrestle with political, regulatory concerns**

By Thomas Hoffman  
New York

WHILE ONLINE brokerages such as ETrade Group, Inc. and Discover Brokerage Direct have been grabbing the spotlight, the stars of Wall Street are still muddling with the business and regulatory issues of Internet-based stock trading.

But they better not wait too long.

Brokerages that try to catch up with their Internet delivery strategies two to three years from now will miss their windows of opportunity and lose market share, said Julian Gomez, president of Gomez Advisors in Boston. Gomez is a consultant who spoke here at the Securities Industry Association's Information Management Conference & Exhibit.

The key, Gomez said, is to start an Internet strategy now, because it will take most firms three to four years just to learn World Wide Web technologies and how those technologies can affect their businesses.

## FINDING A BALANCE

Firms such as Merrill Lynch & Co. have been struggling to strike a balance between their commission-driven sales structures and customer demand for Internet trading services. The Internet and other electronic delivery channels are threatening to cut middlemen, such as financial consultants, out of the

## TRADING UP

Percentage of firms implementing or planning to implement Internet-based trading:

Now	
Large firms	17%
Medium firms	0
Small firms	16%
In six months	
Large firms	62%
Medium firms	27%
Small firms	25%

Based on 53 securities firms surveyed in January.

Source: NASD Equity Group, National, State, and the Securities Industry Association, New York.



investment product.

But financial consultants are needed to provide "value" to customers who need help saving for their children's college education or their own retirement plans, said Kizmin Reeves, vice president of sales

systems and technology at Merrill Lynch in Princeton, N.J.

Merrill's approach has been to include its financial consultants on all Internet-based investment decisions with its clients, Reeves said.

"The smartest salespeople are embracing this technology to tighten their customer relationships," said James W. Toffey, a director at Credit Suisse (CS) First Boston Corp. in New York. Other salespeople, Toffey said, "are downright afraid" of technologies that allow customers to make their own investments "better and faster."

## CS ROLLOUT IN THE WORKS

CS First Boston plans to roll out Internet-based trading to its customers in the next six to nine months, Toffey said. Because the bank processes more than \$22 billion in equity and other trades daily — dwarfing the few million per day that an online retail brokerage such as PC Financial Network might handle — CS First Boston will have to establish feeds not just between itself and its customers but with other dealers and clearinghouses such as The Depository Trust Co., according to Toffey.

As for the commission issue, CS First Boston continues to compensate its salespeople

Merrill Lynch's approach has been to include its financial consultants on all Internet-based investment decisions with its clients.

— Kizmin Reeves,  
Merrill Lynch

"whether the transaction with a client is done over the phone or electronically," Toffey said.

The Internet's intrusion into financial services has also created a host of regulatory headaches. Compliance with Securities and Exchange Commission regulations is one of the biggest stumbling blocks that Prudential Securities, Inc. has faced

in developing a forthcoming Web-based trading service for its customers, said Mohammed Mazaad, senior vice president of information systems and telecommunications services at the New York-based broker. Mazaad declined to discuss when Prudential plans to

roll out the system.

Meanwhile, the New York Stock Exchange and the National Association of Securities Dealers (NASD) have recently filed rule proposals to the SEC on safeguards that brokerages should put in place for their salespeople. The intent is to provide salespeople with a "clear format" for contacting customers electronically and to ensure that prospective customers aren't presented with exaggerated profit pitches or other forms of misrepresentation, said Thomas A. Pappas, associate director of advertising regulation at NASD Regulation, Inc. in Washington.

Ippas said copies of the proposals were sent to NASD members earlier this month for their feedback. □

## COMPUTERWORLD

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## OUTSOURCING

# J. P. Morgan alliance meets most targets in first year

By Thomas Hoffman  
New York

WHEN J. P. MORGAN outsourced one-third of its global information systems and telecommunications operations to four vendors last July, critics said it would be tough to pull off.

The \$2 billion deal, which is structured around 369 individual performance targets, is aimed at spreading the risks and sharing the rewards of outsourcing among the bank and its four partners: AT&T Solutions, Computer Sciences Corp., Andersen Consulting and Bell Atlantic Network Integration.

Now, one year after the launch of the Pinnacle Alliance, J. P. Morgan & Co. has witnessed its share of successes and challenges in managing the landmark deal.

## COST SAVINGS

On the plus side, the vendors are hitting the 15% annual cost saving targets. And the bank has been able to tap partners for their expertise in leading-edge technologies such as object-oriented programming.

But all four vendors "still have a way to go" in keeping pace with the rate of change with which companies on Wall Street such as J. P. Morgan are accustomed, said Michael A. Azarian, managing director at the bank.

There have been other hurdles as well. The Pinnacle Alliance runs J. P. Morgan's IS and telecommunications operations in New York and London, but it doesn't run the bank's operations in Tokyo, where the bank has partnered with IBM to help in its operations. As such, it has been "challenging" to coordinate information technology projects between those separate geographies and partners, Azarian said.

Azarian, who spoke at last week's Securities Industry Association's Information Management Conference & Exhibit here, also said he was "overwhelmed" by the amount of employee counseling he had to do during the first few months of the outsourcing process. The counseling involved not just J. P. Morgan employees, but also longtime contractors who

were being transferred in to the Pinnacle Alliance.

"Things came out of the woodwork that just amazed me," Azarian said, such as contractors complaining about their paychecks being signed by the alliance and no longer by J. P. Morgan.

Azarian said J. P. Morgan's IS structure "looks very much like it did" before it outsourced one-third of its IS operations, with service managers and product managers working directly with end users. The difference was



"Boy, did we get this wrong — you never stop transitioning."

— Michael A. Azarian,  
J. P. Morgan, on shifting its IT operations to four Pinnacle vendors

that users had to get used to "a whole new set of faces."

The bank also included language in the contract that allows it to work with other vendors when needed. For example, the bank continues to work closely with IBM's Transact unit for the "knowledge capital" its developers have with its Encina middleware software, Azarian said.

But with most of J. P. Morgan's personnel issues behind it, executives have more time to focus on strategic business issues, especially now that the alliance is responsible for day-to-day operations.

Azarian has had more time to attend business unit meetings to evaluate how merger and acquisition clients are prepared for year 2000 computing readiness. "We never had time for this kind of stuff before," he said. □

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# No easy route to enterprise

► Compaq needs credible professional services

By April Jacobs and  
Jaikumar Vijayan

COMPAQ COMPUTER CORP.'s merger last week with Tandem Computers, Inc. may make Compaq the first major Wintel supplier to offer a top-to-bottom lineup of Windows NT-based systems. But users and analysts say the combined entity will need more than that to take on giants such as Hewlett-Packard Co., IBM and Digital Equipment Corp.

That's because Houston-based Compaq lacks the credibility-building, in-house global and professional services offered by the enterprise heavy — key attributes chief executive officers and CEOs of major companies look for when building an infrastructure strategy.

"Compaq wants to be the next

HP, but what's missing is professional services... and credibility in the enterprise," said Joe Burkan, an analyst at Gartner Group, Inc. in Stamford, Conn. And although the merger gives Compaq immediate access to Tandem's enterprise customers, it is a somewhat niched base. Tandem plays mainly in the high-end market for powerful, nonstop Unix servers, its servers power nearly 80% of all stock exchanges in the world.

This is a lucrative market for a small company, but it isn't the mainstream commercial server market, where HP and Sun Microsystems, Inc. play and from which they get most of their revenue. Hence, Compaq will have its hands full trying to win, the favor of these information technology standard bearers.

It remains to be seen whether

it will successfully merge with the smaller Cupertino, Calif.-based Tandem. Among the checklist items is the need to meld product lines while building a support and services business to match older more experienced rivals, analysts and users said.

But the merger will open doors in vertical markets such as banking and finance, which depend on high-end fault-tolerant systems such as Tandem's. And it will provide Compaq with more material with which to build a Wintel-based fortress.

"When you look for what makes up an enterprise-level company, you want everything from professional services to deep resources to help you through any tough spots you may encounter," said Ritch Galt, vice president of IT at Merrill Lynch & Co. The New York brokerage is a customer of both Tandem and Compaq.

"Compaq is getting there — that's what they're trying to be — but they're not there yet," Galt said.

## THE SKEPTICS

Some users are skeptical. "Compaq has the best servers in the business, and NT is the system of the future," said Paul Maszcak, a corporate director at CR Bard, Inc. in Murray Hill, N.J. But he said he prefers IBM on the desktop because it can provide "soup to nuts" in terms of service, support and integration. Analysts agreed. "They need to have the ability to go in with a CIO or CEO of a large company and discuss Compaq's strategy and prove they can be the system vendor of choice.... Tandem is small and highly focused, with very little PC or NT expertise," Burkan said.

But both Galt and Maszcak said the merger overall is a positive one that will strengthen Compaq's push to take the lead in the NT marketplace. And with Gartner leading the pack, some users said they will be more apt to take NT seriously as a scalable architecture.

"Tandem's 100% alliance with Microsoft and the fact that they are now part of Compaq seems to be bringing together all the



From left: Tandem CEO Reel Pieper, venture capitalist Ben Rosen and Tandem Chairman Tom Perkins toast the new partnership and a new direction for the company

components necessary for us to begin exploring new opportunities" in terms of running more mission-critical applications on Windows NT, said John Hickey, executive vice president of technology at Nasdaq's Trumbull, Conn., data center. "It's a plus,

plus for us," he said. Nasdaq, which uses Tandem's nonstop Himalaya server to run its stock market applications, only recently launched a multi-year project with the vendor to implement Windows NT across the exchange. □

## FAQs: The real deal

Compaq stunned the industry last week by buying the one company no one had linked with the PC maker: Tandem Computers.

### Q: Why did Compaq buy Tandem?

A: Two reasons: The acquisition gives Compaq control over Tandem's ServerNet clustering, ServerWare monitoring software, management middleware and database technology. By using them, Compaq hopes to be able to build more scalable, reliable Windows NT servers. The merger also effectively doubles Compaq's direct sales force and gives it enterprise-level support capabilities.

### Q: Who are the players?

A: Compaq is an \$8.1-billion PC and server maker. Tandem is a \$1.9-billion provider of fault-tolerant hardware, database software and middleware. Tandem recently began using the same technology to give Wintel boxes the same capabilities.

### Q: How does the deal break down?

A: The merger agreement is a \$5 billion, stock-for-stock transaction. Tandem will become a wholly owned subsidiary of Compaq. The deal must be approved by shareholders.

### Q: Who is in charge?

A: Reel Pieper will remain CEO of the Tandem subsidiary and also will become a senior vice president of Compaq. He will report to Compaq CEO Eckhard Pfeiffer. Enrico Prastner will continue in his role as president and chief operating officer of Tandem.

### Q: Will Compaq or Tandem drop or merge any of their products?

A: Tandem's product lines will be absorbed, but they will retain the Tandem brand name.

### Q: Is this merger a logical fit?

A: It is, according to analysts, insofar as it extends Compaq's reach into the high-end market. But it doesn't move as a springboard into the realm of companies such as Hewlett-Packard Co., IBM and Digital Equipment Corp.

## The buzz on the street

John Hickey, executive vice president of technology at Nasdaq's Trumbull, Conn., data center

"Tandem's [NT] alliance with Microsoft, and the fact that they [Tandem] are now part of Compaq, seems to be bringing together all the components necessary for us to begin exploring new opportunities" in terms of running more mission-critical applications on Windows NT. "It's a plus, plus for us."

John Hickey

Joe Burkan, a research director at Gartner Group, Inc. in Stamford, Conn.

"I give it a thumbs-up for Tandem, certainly... For Compaq customers, it is not as positive. The only potential downside is whether Compaq can hold onto that sales force, because over the long term, selling laptops, PCs and servers is different than selling Tandem's fairly unproductive for many companies, and this marriage will open doors for both them and their customers."

Joe Burkan

to retain Tandem's software and systems strategy as long as it's successful, but whether they position ServerWare as a competitor to Oracle's database or SQL server is the question.

"Compaq stops where NT stops because they can't compete on the high end with HP, Sun or IBM — because Server, HP-UX and MVS can scale, whereas NT at some point stops, and then you have to look at other platforms. But in time, NT will scale better and address these needs. That's what Compaq is pinning their hopes on."

Ritch Galt, vice president of IT at New York-based Merrill Lynch & Co.

"Compaq's direction [with NT] has been strong here, and this merger will make it stronger. This is an opportunity to give their customers products that complement each other in a growing marketplace. NT is difficult to be attractive for many companies, and this marriage will open doors for both them and their customers."



Ritch Galt

# Warning signs of a merger gone bad

By Jaikumar Vijayan and April Jacobs

PRODUCT LINES vanish without a trace. Your trusty service representative is replaced by a new one who doesn't have a clue.

Suddenly, you are charged for the little "extras" that used to be thrown in for free because you were a "valued" customer. You wait days for a problem to get resolved when it once took just a few hours.

Those are some early warning signs that despite the best of intentions, a megamerger, such as the one announced last week between Compaq Computer Corp. and Tandem Computers, Inc., is going bad.

"There is this expectation that once a merger happens, everyone lives happily ever after," said Judith Hurwitz, president of Hurwitz Group, Inc., a Boston-based consultancy. "But the fact is, it is only a starting point. Now is when all the details get to be worked out."

Tim Vokes knows exactly what happens when they don't. He was a longtime NCR Corp. customer when AT&T Corp. bought the company in 1991.

"The corporate cultures just never meshed," said Vokes, a senior database administrator at Anthem Blue Cross/Blue Shield in Cincinnati. "The rules and regulations that AT&T's bureaucracy placed on the NCR sales engineers we dealt with seemed tremendous — service and support just went down dramatically," he said.

Dave Franssen, manager of information systems at Bell Mobility, one of Canada's leading wireless communications companies in Toronto, knows the feeling, too.

"We have lived through mergers where we felt the pain of what can happen when there is too much overlap between the companies' products," Franssen said, pointing to the merger between UJB Networks, Inc. and Newbridge Networks Corp. a few years ago.

Some overlapping product lines were discontinued after the merger, forcing users such as Franssen to consider other options — such as purchasing new equipment — when it came time to upgrade.

Mergers can be tripped by a number of "cultural, strategic, technical and management issues," said Robert McNamara, managing director at Broadview Associates, a merger consulting firm in Fort Lee, N.J.

A key indicator of a cultural mismatch is people leaving either company in droves, McNamara said.

"When a buyer acquires an [information technology] vendor, it is buying the people, the customer base, the technology and the financial assets — in that order," McNamara said. "So when people start leaving, that is a real bad sign."

Problems also can pop up over incompatible or overlapping product lines,

management and technology integration, strategic directions, channel and distribution issues, McNamara said. For example, customers of a vendor's

older platforms may find they are stranded because the platform doesn't fit in with the strategies of the acquiring company.

There's no telling how the Compaq acquisition will play out. But McNamara said, "On the surface, it looks to me like they are picking up some technology at the high end of the product line that they don't have ... and they are looking to add to their sales force. It would seem to be a reasonable rationale." □

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# Hitachi aims disk array at warehouses

► Targets server's need for high-end storage devices

By Tom Ouellette

HITACHI DATA SYSTEMS CORP. has its eyes on your data warehouse. The Santa Clara, Calif., firm last week

announced its 6700 disk array, which targets data warehousing and data mining applications.

The move follows last month's unveiling of HDS's Nucleus, which consists of

bundled software and the low-end 5700 disk array. Nucleus can scale from data marts up to full data warehouses (C.W. May 19).

"Data warehouses tend to be very I/O-intensive and storage-constrained," said Colin Rankine, an analyst at Giga

Information Group's Westport, Conn., office.

With projects such as data warehousing and the reintegration of more Unix servers—as well as the addition of Windows NT servers—into the data center, "there is an increased requirement for high-end storage devices," Rankine said.

Observers said although EMC Corp.'s Symmetrix 3000 series disk arrays are the clear leader in this area, users are demanding more options.



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In fact, users expect nonmainframe storage needs such as data warehousing to grow 37% this year, according to a survey of 300 information systems managers conducted by Soundview Financial Group, Inc. in Stamford, Conn.

For example, The Home Depot, Inc. recently purchased HDS 5700 Unix disk arrays for each of its 540 stores. The move was one step up from the basic Unix server disk drives it used previously.

"We were using plain internal server disks before, but you get too many failures," said Tom Larson, Home Depot's senior manager of technical services. "We've already rolled the 5700s out to our new stores because we wanted availability and redundancy."

The 6700 ups the ante for centralizing and using this type of distributed retail data.

The array can attach to as many as 16 servers at once, with up to 1.6T bytes of RAID 5 protected storage available. The 6700 gets this power because it is actually a repackaged 7700 mainframe disk array fitted with SCSI and fiber interfaces to attach to Unix and Windows NT servers.

More important for data warehousing, the 6700 monitors data access patterns and dynamically places the most-requested data sets into high-speed system cache, avoiding delays associated with pulling data off a disk.

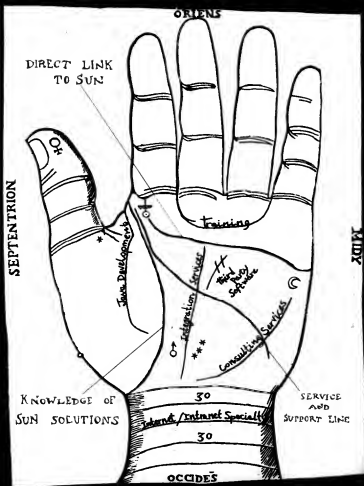
"About 80% of user I/O requirements go to 20% of the data," said Ray Cosyn, director of storage marketing at HDS.

## MORE TO COME

HDS said it plans to provide similar dynamic cache capability to the 7700 for 5190 data, although it didn't provide a time frame for availability.

The 6700 array, which is available immediately, will initially support IBM's AIX, Sun Microsystems, Inc.'s Solaris and Hewlett-Packard Co.'s HP-UX Unix operating systems. Windows NT support is slated for year's end. Prices for the 6700 start at \$500,000. □

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# IBM issues beta Java kit for OS/2 Warp 4

By Laura DiDio

IBM LAST WEEK sent more than 10,000 users a beta release of its Java Development Kit (JDK) 1.1 for the OS/2 Warp 4 operating system.

The JDK package is intended to give

Java applications that run on OS/2 Warp desktops a 30% performance boost. And users said IBM's support for Java is an important factor in deciding whether to continue with OS/2.

"This should help us to stick with the OS/2 Warp 4 platform," said Warren

Huffy, PC supervisor at the Louisiana Department of Transportation in Baton Rouge.

Huffy said it is "an absolute necessity" that his users be able to deploy Java applications that run on Windows 95 and OS/2 Warp desktops. "If IBM hadn't pro-

vided support for the latest version of Java on OS/2, we would have found it extremely difficult to continue using it, because like everyone else, our Web age is growing — along with our complement of Windows 95 desktops," he said.

Another longtime OS/2 Warp user at a California firm that is beta-testing JDK 1.1 agreed. The information systems manager, who requested anonymity, said the ability to write applications for the Java platform and deploy them on any operating system will "help us keep running OS/2 Warp."

## STAYING IN THE GAME

The manager added, "We're very happy IBM is so committed to Java. It keeps them competitive and lets us retain our investment in OS/2 Warp."

The JDK 1.1 package, which will be released in the third quarter, will give OS/2 Warp 4 users access to the latest Java capabilities and remote access options.

It contains several security and infrastructure enhancements that make it easier and safer for users to download applications from the World Wide Web, said Sandy Rankin, director of network computing solutions, IBM Personal Software Products Division.

Also, the JDK 1.1 beta software is fully compliant with Sun Microsystems, Inc.'s implementation of JDK 1.1, which includes support for JavaBeans and Java Database Connectivity.

Users and analysts said expanding Java support to OS/2 Warp Server will allow IS managers to deliver business content and applications on corporate intranets and over the Internet to both browser- and nonbrowser-based systems.

"We strongly believe in Java and its promise of 'write once, run anywhere' capability," said Cynthia Jeness, a technical consultant at Golden Code Development Corp. in Redwood City, Calif., which is beta-testing the JDK 1.1 package. "The availability of Java 1.1 for OS/2 Warp will give us an ideal platform for leveraging our Java development efforts across both the Internet and our corporate intranet, regardless of the underlying operating system platform," she said.

Other users said it will keep IBM abreast of Microsoft Corp. and Netscape Communications Corp. in the Internet and Java development race and allow them to protect their existing investment in the OS/2 Warp platform.

More information about JDK 1.1 for OS/2 Warp can be found at [www.software.ibm.com/java/97](http://www.software.ibm.com/java/97).

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Transactions in the Age of the Consumer

# Labor drought scorches

CONTINUED FROM COVER 1

Whitehouse Station, N.J.

So IS departments are overhauling everything from recruiting practices and training programs to IS project schedules and outsourcing plans.

Meanwhile, the costs are piling up. There are referral bonuses, signing bonuses and other recruiting costs to find IS talent. Companies will pay breadwinners up to 30% of an IS professional's annual salary, for example. That is an additional \$16,500 for every staffer hired at last year's average salary of \$55,000.

There is also the cost of higher salaries, bonuses and better benefits to retain staffers. Rubin, an IS labor analyst and benchmarking expert at Meta Group, Inc. in Stamford, Conn., estimates that an IS professional who makes \$55,000 will receive additional compensation premiums next year totaling as much as \$11,000.

There is also the hidden cost of software projects that are short-staffed — or never even get off the ground — because of the labor crunch.

Last sales or inadequate inventory caused by an unfinished system, for example, can cost millions of dollars every day.

For every dollar spent on IS salaries, a company can expect to generate \$41 in revenue, Rubin said. Under that assumption, a company could lose \$2.4 million per year for each IS professional it can't hire. That

means up to \$500 billion in lost business revenues nationwide, he said.

One big reason for the shortage is the 48% decrease in U.S. computer science graduates from 1986 to 1994. Experts also cite the slow rate at which companies can retain workers in new technologies.

"It's very much a long-term issue," said John LaFrance, an industry expert at the U.S. Department of Commerce in Washington. The agency recently set up a task force to recommend ways to cushion the impact on the U.S. economy. Items up for discussion include changing immigration policy and giving tax deductions to people who enroll in IS training programs.

## GOING TO COLLEGE

In the short term, employers are scrambling.

For example, Merck and other companies are dispatching IS managers to college campuses on recruiting missions.

Experienced talent stays only a couple of years, then moves elsewhere, which means recruiting all over again," Popper said.

Another large drug firm, Philadelphia-based Smith-Kline Beecham Corp., has a different plan: IS workers who stick with the company over the next three years stand to earn salary bonuses and stock options worth up to 90% of their base salaries.

The two-part goal is to reduce employee turnover costs and limit defections while Smith-Kline Beecham is in the midst of a major year 2000 program.

Other companies focus on retaining staffers with newly tailored benefits packages, flextime and "soft benefits," which range from verbal praise to on-the-spot monetary bonuses.

"These are the psychological paychecks — words of encouragement, compliments, sitting down and talking with people and understanding them," said Greg Tealand, chief information officer at Sprint PCS in Kansas City, Kan. "You can't minimize the importance of sharing a cup of coffee or sitting down to lunch."

But money also talks. IS workers at Houston-based

American General Life Insurance Co., for example, sometimes get salary increases on the fly. The tactic helped cut IS staff turnover from a high of 20% last year to 5% this year.

"People feel good if you give them an unexpected market-value adjustment. They feel they've got value and that the company has a strategy for retaining them," said Rebecca Campbell, vice president of or-

ders get a day off with pay from their regular jobs as technicians or service representatives or operators to attend classes. They also complete additional academic work over an extensive Lotus Notes network that links the students with the program's 220 professors. Each student is given a laptop computer, at the company's expense.

Without their own computers, students would require



"People ... feel like we gave them a chance, so they're going to work with us and stick with us."

— Mary Stewart,  
Total System Services

more time off the job to complete the necessary laboratory work. "So by having them do lab work at home by computer, we more than paid for the laptops," said John Abeles, executive director at Nynex University, the company's training and development arm.

So far, about 45% of the enrolled students have dropped out. Some didn't want to trade higher-paying overtime work hours for study hours. Still others couldn't find an additional 20 hours per week to study, besides meeting family and community commitments, Abeles said.

## Nynex Corp.

New York

Five years from now, Nynex hopes to reap the rewards of its \$50 million investment in 1,000 technical employees currently enrolled in its Next Step program.

After completing 60 credit hours at a community college, the employees will receive an associate degree in applied science with a focus on telecommunications.

The degree was designed specifically to help untrained workers fill new high-tech jobs five years from now. Nynex wants a new breed of field service worker with the computer skills needed to access customer and switching data stored in mainframe systems.

Each week, Next Step stu-

## Total System Services, Inc.

Columbus, Ga.

As a credit-card processing company that handles about 80 million accounts monthly, Total System Services relies heavily on massive mainframe computer systems and hundreds of mainframe programmers.

A key supplier of those professionals is an accelerated, applied computer science program sponsored by Georgia's Innovative Intellectual Capital Partnership Program (ICAPP). Six students accepted into the six-month program receive a \$10,000 education loan, which is forgiven if the graduate works four years in a computer-related job anywhere in Georgia. The program graduated 80 students in March, 79 of whom will join Total System Services this summer.

A college degree or prior computer experience aren't required to enroll in the program or apply for any IS position at Total System Services. Instead, the company prefers to grow its own IS talent internally, a strategy that has led to more loyalty and an IS turnover rate of 8% to 10% — half the industry average.

"People ... feel like we gave them a chance, so they're going to work with us and stick with us," said Mary Stewart, senior vice president of IS. "I feel like we're in better shape than most companies because of what we've done."

Rubin Skisnowski, a 41-year-old former elementary school teacher who went through Quick Start, a predecessor of the ICAPP program, has been promoted three times in her three years at the company.

"I really feel like the sky is the limit to growth," she said. □

## Computerworld INDEX

Number of people employed in IS: **1.2M**

IS jobs currently unfilled: **200,000**

Average annual salary of all IS workers: **\$55,000**

Average annual IS salary increase: **20%**

Average annual salary increase for other jobs: **4%**

Average recruiting costs for companies with 100-plus vacancies: **\$750,000**

Source: U.S. Department of Commerce, Georgetown, Ind. Group, Inc., Stamford, Conn.

## Behind the numbers

**\$15 billion** Last year, there were 1.2 million IS jobs, in the U.S., each paying an average annual salary of \$55,000. But IS salaries are increasing as much as 20% per year, vs. 4% for other industries. So employers may have to pay up to \$15 billion more in IS salaries next year, according to calculations by analyst Howard Rubin.

**\$500 million** For every \$1 that companies spend on IS talent, an IS worker could support \$41 in business revenue, Rubin said. Multiply \$41 by 200,000 unfilled IS jobs by the average IS salary of \$55,000, and the total cost of lost business opportunities works out to \$475 billion.

**On the other hand** Several IS executives said salary premiums of 20% are reserved for the top IS professionals, with the hottest skills and aren't applicable to all IS professionals. They said Rubin's figures are a worst-case scenario. — Julie King

**"Gee, Frank.**

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the rest of the day off."



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### **Second, Exchange Server is a remarkably flexible and easy-to-administer system:**

- It supports all current Internet standards and protocols and it works with all major network environments. Plus, its open architecture means you'll be ready for whatever curve-ball technology might come your way in the future.
- The tight integration of Exchange with Windows NT® Server lets you reap the benefits of advanced security features and helpful management tools like the performance monitor and event log.
- Centralized administration lets you, the person who does the hard part, configure Internet gateways, add and delete users, track messages and even reboot—using one friendly interface on a single machine.
- Automated Exchange System Attendants even watch over your server and connection status, responding to problems by restarting the server or notifying you—before you get the bothersome phone calls.
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## Computer Industry

## Briefs

## Microelectronics profiles

**Integrated Circuit**, Inc. last week reported its 10% increase in third-quarter earnings. The Nashville, Ind., supply-chain software market leader posted profits of \$3.6 million in the quarter, up from \$2.1 million a year earlier. First-quarter revenue for the period ended May 31 was \$9.5 million, up 15% from \$8.4 million a year ago.

## Card packs get lines

Card Corp. last week announced a cut back of 100,000 copies, or 10% per client, for the second quarter ended May 31. But Card would have earned \$1.1 million in profits if it hadn't cut back on the cost of purchasing technology from several companies, including Intel, Sun Microsystems Inc., and others. Card, a 100% owned subsidiary of the forthcoming Card Video Network Computer and Card Video Compression Corp., the company said. Apparently the company will survive this year anyway.

## Card video will roll

Card Corp. last week announced a cut back of 100,000 copies, or 10% per client, for the second quarter ended May 31. But Card would have earned \$1.1 million in profits if it hadn't cut back on the cost of purchasing technology from several companies, including Intel, Sun Microsystems Inc., and others. Card, a 100% owned subsidiary of the forthcoming Card Video Network Computer and Card Video Compression Corp., the company said. Apparently the company will survive this year anyway.

## Cisco enhances its stable

► Global alliance, acquisitions, new tools

By Bob Wolcott

CISCO SYSTEMS, INC. last week was busy expanding its networking empire. The company announced an international alliance with Alcatel Alsthom, bought firewall and wide-area network equipment firms and introduced tools to simplify router installation.

The moves plug holes in the company's product line. The moves are aimed at offering packages to make corporate networks more flexible, less expensive to build and more secure.

## ONE NETWORK

The global alliance with Paris-based Alcatel will result in the development of products that let firms consolidate voice, data and video over a single network.

"This is the most important of the moves because it has the greatest potential overall impact on networking," said Craig Johnson, director at Current Analysis, Inc., a research and consulting firm in Ashburn, Va. "They're partnering with the biggest and best to boost networking globally."

Cisco also bought Global Internet.Com, a Palo Alto, Calif., maker of Windows NT security firewalls for \$40 million.

It then spent \$156 million on Ardent Communications Corp., a San Jose, Calif., builder of equipment that lets users con-

SHOPPING SPREE		
Cisco has spent nearly \$6.5 billion on 18 acquisitions since 1993. These were the largest ones.		
Company	Date	Amount of the deal
StrataCom	April 1996	\$48
Grand Junction	Sept. 1995	\$240M
Grandis Systems	Sept. 1995	\$220M
Kelpana	Oct. 1994	\$203M
TruSoft's MICA Technologies	July 1996	\$200M
<b>TOTAL</b>		<b>\$4.95</b>

solidate all traffic on frame-relay and WAN links.

Cisco already has a security firewall for large, central sites but had nothing for midrange and small offices. The growth of NT makes it a popular platform from which to offer security.

And security at remote offices is the weak link in most firms' security chain. Because they are afraid of robust systems at central sites, hackers tend to break in to remote sites where they appear as normal users to the central site system.

"They're short in this area and really needed something for NT," Johnson said. "They want to dominate the security market, but that pits them against more established vendors like Check Point Software. Cisco has [recently] laid out its security road map, and this fits into it."

Cisco's acquisition of Ardent also may be good news for

users: The firm's products let users funnel voice, data and video onto frame-relay and Asynchronous Transfer Mode networks. So users won't need parallel networks and can thereby save money.

The vendor also announced two software tools — Cisco Fast Step and Cisco ConfigMaker — for simplifying router installation and a program whereby it provisions Integrated Services Digital Network lines for users.

"This is a key area for network administrators but is often overlooked with all the noise around LAN switching development," said John Morency, a principal at The Registry, Inc., a consultancy in Newton, Mass.

"Products like these are useful because routers are essential to building new networks like virtual private networks and electronic commerce systems," Morency said. □

## IP SUPPORT

## Banyan cozies up to intranets

By Barb Cole-Gomatos

BANYAN SYSTEMS, INC. believes that helping customers turn existing networks into intranets is the key to its comeback.

The Westboro, Mass., networking vendor hopes to revive its business by supporting Internet protocols across its products and by rolling out new standards-based offerings.

Banyan's intranet initiative includes adding support for the Lightweight Directory Access Protocol to its StreetTalk directory by the end of summer. The company also has announced Intranet Connect, software that lets users access Banyan services using World Wide Web browsers.

The moves show Banyan is committed to open systems, said Bob Whelen, information technology director at Northeastern University in Boston, which uses Vines and StreetTalk. With Intranet Connect, Whelen said he can give Macintosh and Unix users the same level of access to Banyan services that PCs users have long enjoyed.

Support for Unix desktops was spotty, and Macintosh users could only access certain applications off the network, he said. Banyan will also be a step in helping "users already have browsers on their desktops," Whelen said.

Jon Olmick, a research analyst at Forester Research, Inc. in Cambridge, Mass., said the intranet focus was wise, but that the moves are "really just baby steps at protecting [Banyan's] installed base."

Novell, Inc.'s IntranetWare and Microsoft Corp.'s Windows NT 4.0 — both of which started shipping last fall — already have these capabilities. □

The moves show Banyan's commitment to open systems.

## Digital puts its AltaVista spin-off on ice

By Stewart Deck

DIGITAL EQUIPMENT CORP. has abandoned plans to spin off AltaVista Internet Software, Inc. as a separate, publicly traded entity, the company announced last week.

As part of Digital's new strategy to integrate business units, the company decided to keep AltaVista in-house and leverage its brand name as a leading Internet search tool, according to Digital CEO Robert Palmer.

"Digital's new organization emphasizes solutions and the synergies between our product and service businesses," Palmer said. "To achieve this kind of integration that customers value."

It is more appropriate to take advantage of the AltaVista brand and technology as part of Digital's overall product portfolio.

The company will roll AltaVista Internet Software into its product division, Palmer said. Digital had been planning

since last summer to spin off AltaVista for two main reasons, said Gary Helming, an analyst at Soundview Financial Group in Stamford, Conn.

## WEAKER IPO MARKET

An initial public offering (IPO) would be a way to reward the creative team that built the AltaVista search engine and keep them at Digital.

At the same time, the public offering would have been a way to raise approximately \$50 million.

"But this time the IPO market hasn't been as strong as it has been in previous years. And it has been especially tough for [search engine companies] to do very well with IPOs lately," Helming said.

William Smith, an analyst at Renaissance Capital Corp., an IPO and mutual fund research firm in Greenwich, Conn., said Digital's plans for AltaVista just may not have been revised. "My guess is that it is an issue of fundamentals in AltaVista, not the market at large," he said. □

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**The Network Works.  
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## Let us - mix this Last week Lexis-Nexis struck a puny and misplaced blow for the privacy of ordinary Americans.

The company, which collects personal data on millions of people and resells it to subscribers, promised to let people examine the information it has about them.

Big whoop.

It made the concession under pressure from the Federal Trade Commission, will continue to sell private information and hasn't even figured out how to release

the information securely. But Lexis-Nexis' predicament should serve as a warning to any company that has suddenly found how easily information flows with new technology.



Takes extranets, for example.

They let you plug in business partners to customer information in legacy databases that previously resided behind doors marked "Abandon all hope..."

That's fine for you and your partners, but what about the customers who gave you that information?

Customers trust you to responsibly handle the information they give you, especially if it's medical, financial or anything else that's sensitive. If your extranet recycles that data and makes it widely available, you are violating the trust customers placed in you.

The FTC knows this, and there are bills wending their ways through Congress that will punish you for it.

I don't mean every extranet proposal should undergo the same scrutiny as a search warrant. But when you build a new information-sharing system, think about whether the strictures and processes you're eliminating are the result of simple inefficiency or whether they were put in place purposely to help protect the privacy of the people involved.

As Lexis-Nexis is learning from the FTC, technology is like a gun. It gives you great power — and the responsibility to be careful where you point it.

Kevin Fogarty, Sections editor  
Internet: kevin\_fogarty@cw.com



### Don't blame contract coders for 'almost obscene' pay

**I** MUST COMMENT on your article in which you quoted Brian Hoffman, a recruiter, saying salaries for contract programmers have become "almost obscene." ("Staffing woes deepen," CW, May 19).

I'll bet Hoffman doesn't think his \$50,000 or more income is obscene — and he contributes nothing to the economy. Your article failed to mention that contractors have to pay for virtually all of their own benefits, such as disability insurance, life insurance, health insurance, pensions, and so on. Contractors are typically responsible for their own training and career development, as well.

What is truly obscene in all this is the moaning of people like Hoffman. Contractors did not make the current market conditions and it's absurd for someone to suggest that they should not take advantage of it. Do other high-income professionals such as doctors, lawyers or engineers turn down income because what they earn is "obscene"? Not bloody likely.

Geoffrey K. Wascher  
Senior systems analyst  
Ulrica, Mich.

### Java glossary reconsidered

**I** WAS A BIT DISAPPOINTED with the glossary of terms that you included in the article on Java in the May 12 issue ("Java's still out"). The glossary was full of inaccuracies. Your writer seemed a bit confused on the subtle differences between classes, objects, components, applets, etc. I believe the definitions for JavaOS, JavaBeans, Component, Applet, Inheritance and Class were wrong, and

the definitions for Java RMI, Encapsulation and DCOM were either misleading or incomplete. I invite readers to a more accurate glossary at the Patricia Seybold Group Web site at [www.psgroup.com/glossary.htm](http://www.psgroup.com/glossary.htm).

Anne Thomas  
Editor in chief,  
Distributed Computing Monitor  
Patricia Seybold Group

### Universities should teach basics, not hottest skills

**W**HILE ALLAN R. ALTER's opinion column ("D for effort," CW, June 9) did not surprise me, it did support my belief that many IS professionals do not understand the role of a university in today's society. As a recent graduate of the Management Science and Information Systems program at Pennsylvania State University, I can safely say that my professors, advisors and colleagues prepared me well for my career as an IS professional.

It is not in a student's or an employer's best interest to focus on the latest and greatest technology at the undergraduate level. Students who seek to build careers do not need out-of-the-box skills. They need the aptitude to excel in the IS field — with solid analytic and communication abilities — and the capacity to grow and change with a business. What is hot today will not be hot tomorrow. Universities would be doing their students a vast disservice if they caved in to clamoring employers who are too poorly managed and too poorly funded to provide adequate training for new hires.

Michael D. Grier  
Cincinnati  
[mdgrier@choice.net](mailto:mdgrier@choice.net)

### Microsoft marketing questionable; bashing unfair

**I** M WRITING in reference to Editor Paul Gillin's Upfront column "Selling vision," CW, May 26. He asserts that Windows gained critical mass because vendors created products to correct bugs and shaly performance. Oh, really? Do you suppose maybe Windows was at least partially so successful because it was a product that people wanted and were willing to buy?

Gillin claims Windows is "highly proprietary." Has he been to a bookstore lately? Microsoft has readily published volumes of programming books, reams of white papers and has the best developer support system available anywhere.

Yes, Microsoft has some questionable marketing tactics, and I would agree with much of Gillin's editorial about Windows NT. But let's not bash Microsoft just because it's in vogue to do so.

Mark Hoffman  
Dallas

Maybe people just wanted to buy Windows.

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Marilyn Johnson, Executive Editor, Computerworld, PO Box 9174, 500 Old Connecticut Path, Framingham, Mass. 01901. Fax number: (508) 875-8931; Internet: [letters@cw.com](mailto:letters@cw.com). Please include an address and phone number for verification.

# Parallel sysplex: Bug or feature?

Efrem G. Mallach

Industry veterans may remember Datapoint from the 1960s and '70s. It pioneered the first commercial LAN technology, Arcnet. The first three letters stand for attached resource computer, and the idea was to hook up lots of computers to get more work done.

It was a classic case of "if you can't fix it, feature it." Datapoint was stuck with slow 8-bit machines—originally data entry systems—when everyone else had "fast," 16-biters. That put it at a major disadvantage when it came to handling any nontrivial job. Datapoint couldn't fix it, so it featured it. Shouting, "Look how we hook up lots of little computers!" beats whispering, "We need lots of our computers to do the same job other folks do with just one."

What brought this to mind was a piece in the March 31 *Computerworld* headlined "Parallel sysplex a slow migration."

**Like Arcnet, parallel sysplex is a classic case of 'if you can't fix it, feature it.'**

Dressed up with faster channels, fiber-optic technology, state-of-the-art clock synchronization and buzzwords such as "cluster," parallel sysplex is Arcnet reborn.

Parallel computers aren't always a bad idea. Ever since Tandem delivered its first fault-tolerant system, parallel computers have been a commercial reality. There are places where they make a lot of sense—just by creating a faster computer to do what ought to be a one-computer job sort of them. Datapoint users found that out

to their sorrow. Mainframe users who haven't studied history now can repeat the experience.

That's because there are some problems parallel computers can't address. In many applications, single-processor speed is the critical factor in response time. Total MIPS, whether in one system image or spread over several via parallel sysplex, may increase the maximum number of users but won't improve response time or the reaction time of critical shared code. Applying parallel sysplex to such problems won't help. Its additional overhead may even hurt.

IBM has never offered the fastest System/390 architecture computers and isn't likely to in the foreseeable future. If therefore stands to reason that, like Datapoint, it will push ways to hook its computers together when other folks do the job with one, faster box. That, in effect, is what clustering offers most users.

So what's the alternative? The March 31 article mentioned Hitachi Data Systems' (HDS) Skyline series, with a current maximum per-CPU rating of 150

MIPS and up to eight processors per system. The maximum effective 1,000-plus MIPS on Skyline are about twice what IBM offers with 30 CPUs of about 60 MIPS each.

My purpose isn't to get everyone to go out and buy an HDS mainframe. If HDS wants to ask people to do that, it can buy ad space. Getting a much faster computer isn't the only way out of the parallel sysplex box. There are database sharing approaches that are simpler than full parallel sysplex but will do the job quite well for many applications, and there are other options.

My purpose, rather, is to get 15 managers to look at why they're buying a new technology. Make sure you aren't fixing a problem you don't have to have. Don't be dazzled by buzzwords, technology that has no bottom-line business value or an overzealous sales representative. Look twice before you sign up. Make sure it's really a feature, not a fix-it. □

Mallach is chairman of the MIS program at the University of Massachusetts at Lowell and is CEO of consulting firm Kensington Group, Inc. His E-mail address is mallach@wood.uml.edu.

## Data mining in a vicious circle

Michael Schrage

Even as data mining's digital prospectors bid to discover new El Dorados of the Information Age, the probability police warn of "knowledge nuggets" as valuable as virtual fool's gold. **Correlation isn't causality**, they accurately proclaim. To paraphrase Mark Twain, "There are lies, damned lies, statistics ... and data mining."

To be sure, just because unmarried, blue-eyed, left-handed men who drive Volvos purchase 1,450% more widgets on Thursdays than their married, brown-eyed, domestic-driving counterparts makes a marketing epiphany make.

The fact that telemarketing survey calls made to households with children between the hours of 8 p.m. and 10 p.m. weeknights generate an 18% higher response rate than calls made to comparable households on weekends doesn't necessarily mean a company should change its survey times and tactics.

Yet there shouldn't be a 0.0001 scintilla of a doubt that data mining algorithms surveying the multimedia Mesabo Range of enterprise computing will yield rich lodes of insight. Clearly, the biggest

short-term impact of data mining on corporations will be in fostering a heretofore unimaginable statistical literacy upon management. Much as desktop publishing kindled an awareness of typography (I mean, really, how many white-collar workers in 1983 knew, let alone cared, about the distinctions between Palatino and Helvetica fonts?), successful data mining demands at least an appreciation of autocorrelations and T-tests.

But chi squares and analysis of variance aside, odds are data mining won't have the organizational influence its most ardent champions anticipate. It's true that data mining will winkle out intriguing and provocative

patterns of information, but it's also true that creating information about information guarantees a growing demand for ... new information.

Think about it. Data mining virtually guarantees full employment—plentiful or otherwise—for MIS folks and MBAnalysts. Consider this perfectly plausible scenario: A global company commits to using the latest and greatest data mining algorithms to identify significant correlations in the customer service and profitability arenas. Ninety days later, the miners unearth no fewer than 43 statistically significant patterns. An even dozen of them are potentially actionable.

What do you think the rational, well-managed organization will do? The answer is obvious: It will try to identify the underlying dynamics of those correlates. That means the



**Creating new information guarantees a growing demand for ... new information.**

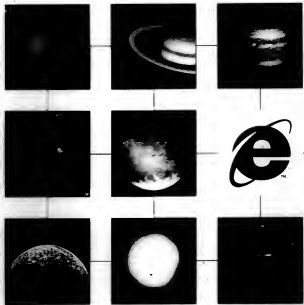
organization has to go out and gather more data—and then process it into information. To mix metaphors, the fruits of data mining literally become the grist for the information mills of the enterprise. It's a vicious circle: Data mining insights demand more data that must be mined for confirmation that becomes part of future databases to be queried. Such a deal!

Picture the lively possibility that desktop data mining will be as cheap, easy and pervasive as desktop publishing within a decade. People from every facet of the enterprise will be "discovering" correlations that might merit further investigation.

The ongoing endgame is that organizations become gripped by statistical inspection and perpetual conversations about significance. Then we data mine our data mining algorithms to ascertain any biases we may have.

Don't get me wrong: Data mining will prove a important organizational tool. But any organization that uses it had better become introspective about a lot more than their data or else. □

Schrage is a research associate at the MIT Media Lab and author of *No More Teams!* His Internet address is [schrage@media.mit.edu](mailto:schrage@media.mit.edu).



Your browser defines what your intranet can do. We assume you want your intranet to do everything.

The whole idea of Microsoft® Internet Explorer 3 is to make your intranet simpler. So let's keep this simple: Platforms. Build it on what you have. Run it on what you see. All the flavors of Windows®, Macintosh®, in our next version: UNIX. Content. See it all. Write it all. ActiveX®, Java®, VBScript, HTML, even humble Microsoft Office documents. Administration and security. With the Internet Explorer Administration Kit, you have the only tool that lets you remotely manage and secure the intranet from your desktop. Please don't get us. Proof. Download Internet Explorer 3 at [www.microsoft.com/ie/](http://www.microsoft.com/ie/) (it's free). These are corporations such as Shell, Arthur Andersen and Dayton Hudson who have already made their commitment to Internet Explorer 3. Future. Yours for the taking.

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**Microsoft**

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## COMMENTARY

## Content is not software

DAVID MOSCHELLA

**N**O DOUBT you've heard the basic argument. Microsoft controls the core of the software busi-

ness. It's now targeting digital content. Content is a lot like software. Ergo, Microsoft is poised to dominate electron-

ic content. Right?

Well, no. Software is actually very different from content, and success in one doesn't imply success in the other. The two industries do have one big thing in common. Both consist entirely of bits. These bits can be reproduced, legally or illegally, with effectively zero marginal cost. In economic

jargon, software and content have virtually infinite economies of scale.

But economics is where the big similarities end. Beyond the obvious fact that software is created by programmers and content is usually produced by writers, artists, researchers, and so on, the most important difference is that software use tends to be homogeneous, whereas content markets are highly fragmented and suited to taste. For example, if you love music, you might want 500 or even 5,000 CDs. But no matter how much you like to write, you will probably still use only one word processor. Software is a tool; content is a solution.

## RISKS OF ACQUISITION

The proof of these differences is seen in the market. Other than Microsoft, name another software vendor that is aggressively entering the content business. Or vice versa: Try to find a content company that really wants to get into the software business. Microsoft is a special case only because it has so much money. Of course, Bill Gates could buy his way into the content business, but as the Japanese have learned, with big content acquisitions, the risks often outweigh the rewards.

People exaggerate Microsoft's potential in this area because there is so much inherent synergy between software and content. Consider the power of "push" media, agents, search engines, multimedia, interactive entertainment and virtual reality. These all require close interaction between the proposed content, experience and the underlying software tools. Indeed, from a user's perspective, software and content often do seem inextricably linked.

But from a developer's perspective, whatever software tools Microsoft produces will be available to any content provider, not just Microsoft's in-house content team or its chosen partners. Because content markets are so fragmented, a vendor who develops a useful tool would be silly to restrict it to any one content application.

Although newspapers, broadcasters and others are understandably wary, Microsoft's overall content efforts should be viewed primarily as attempts to use its great wealth to validate concepts, move the market forward and further entrench Microsoft software. Of course, with all its money and talent, Microsoft will surely have some content successes. But since content can't be monopolized, the potential profits will be dwarfed by Microsoft's immense software riches.

No matter what it does in content, Microsoft's future will depend on its ability to dominate the underlying software environment. Microsoft won't morph into a content company. For it, software is a much better and more important business. □

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COMPUTERWORLD



## Speaking Productively: A Partnership Approach to TCO

This is a story about productivity. It's also a story about partnership. But it isn't a story about the horrors of TCO. You don't need another article to tell you what you already know: that PCs cost too much to manage, to run, to upgrade. **What you need are answers.**

So within this article, we're going to give you some answers. We're going to paint a picture of what your computing environment could look like in less than a year, and how, working hand-in-hand with our partners, we're going to deliver it.

**Listening to our most important partner.** You. At Microsoft, when we set out to study TCO issues, we went straight to the source: CIOs, IT managers, System administrators. People like you who live and breathe cost of ownership issues every day. And who have a very clear idea of what the future could be if someone would just stop for a moment, and listen.

So we did. We listened. Then we joined with PC and key component manufacturers who also were busy listening. And using what we heard, we forged partnerships with them founded on a common belief: that it is not enough to lower costs here and there; what works is to increase productivity everywhere. Only then can we all realize dramatic savings. Only then can we focus on what's truly important: total business value.

A word about these partnerships. These aren't simple ink-and-handshake deals; this is old-fashioned teamwork. We don't just pick up the phone and chat. We live in each others' offices. We hammer out specs. We share customer input. In short, we put our collective heads together. And you know where it's taken us? To a long-term solution that doesn't just address the cost of ownership problem. It tackles it head-on. And at the same time, ushers in a new era of computing that will help people accomplish more. With less. Here's how.

# "What does helping people and faster have to Everything."

**Standards are empowerment.** Our strategy is founded on standards. Standards are glue. Standards extend the value of a distributed environment by ensuring that all the pieces fit together seamlessly. They aren't one company's idea of what comes next. Standards are simply this: roadmaps. And they belong to us all.

The fact that the Microsoft® Windows® PC environment is based on standards is no accident. And the result—that it has empowered millions of people to get more work done in less time—is no coincidence.

As the Windows PC environment continues to evolve, its ability to empower won't change. It will grow. From the handheld Windows CE, to the portable computer, the desktop PC, the Windows NT, Workstation, to the newest kid on the block—the NetPC—the Windows PC platform will enable people to be even more productive no matter where they are. Because while all these pieces work separately, they also work in one other important way. Together.

That's an interesting point to bear in mind as you consider your next technology move. Because while others may offer technology they claim also works, the question is, what will it work with?

**Enabling, not disabling technology.** With our partners, Microsoft will soon be delivering two key productivity solutions based on standards: The Zero Administration Initiative for Windows (ZAW) and the Network PC. Take a closer look at the NetPC.

Designed as a complement to, rather than a replacement for, your organization's existing environment, the NetPC is an example of how, with our partners, Microsoft has eliminated extra costs by tightening the standards for the corporate PC—without jeopardizing the kind of flexibility and compatibility organizations need to be productive. At the core of these tightened standards is the right balance of centralized control.

"Right balance" is the key phrase there. It offers the kind of control that allows your network administrators to remotely configure, upgrade, and manage systems (which means, among other things, that individuals will no longer be able to install "junkware" on their work systems). But it also

Choice is the power to select from any of more than 100,000 Windows-compatible applications (including your own custom programs) to run your business. But choice goes beyond what's here now; it's also about what comes next. Because choice enables the freedom to move forward to new technologies as you see fit, backed by the power of compatibility, interoperability, and integration.

# work smarter, better, do with lowering TCO?

includes a hard disk—which ensures that, even if the servers get busy or the network goes down, productive work doesn't go down with it.

**Moving it all forward.** But what about your existing desktops? That's where Zero Administration Initiative for Windows comes in. ZAW is a long-term plan that will bring you a far easier and better way to deploy and manage your organization's desktops. How much easier? Picture this: in the future, upgrading 250,000 desktops will require three exacting steps: Point. Click. Go to lunch. It's also that easy to update the operating system—or perform almost any of the countless tasks that take your time, but not your talent.

ZAW also enables the development and deployment of the widest range of applications and supports the last important concept we want to highlight today: Choice.

**An evolutionary beginning.** Add it all up—Windows PC, the NetPC, ZAW—and you're left with the three basic tenets of our partnership approach to productivity. Empowerment. Simplicity. Choice. Together, they comprise an evolutionary strategy that puts the TCO issue where it belongs: in the soon-to-be extinct category. And ends this story with something you don't often find: a new beginning.

By the way, if this strategy sounds like a productive way to solve your TCO issues, then take a moment and put yourself on the back. The ideas came from you. All we and our partners did was take the time to listen. And make the commitment to act.

**Compaq: Sensible Scalability.** At Compaq, we're not only committed to helping corporations find new ways to lower costs—we're providing a full spectrum of scalable solutions that make them reality. Today Compaq offers the full line of Windows PC platforms. From the hand-held Windows CE, to the NetPC, to the laptop, on up. We do so because we know our customers share a common need for continuity. The kind that ensures all the different parts will work just as well together as they do alone.

As we worked with Microsoft on the NetPC specification, it soon became clear to us that here was the missing piece: A computer designed for a new class of end user; someone who needs the performance and compatibility offered by PC architecture, but not the expandability of the mainstream PC. Add in ZAW, with its easy deployment and management capabilities, and it's easy to see where this technology will take our customers. Straight to the bottom line. And well in the black.

## from our partners

**Dell: Open Standards Flexibility.** At Dell, we have a thorough understanding of the cost of ownership issue. Because we speak directly to more than 50,000 of our customers every day. Know what we've heard? That it isn't enough to make a low-cost PC.

We couldn't agree more. That's why we're proud to say we're one of the co-authors with Microsoft on the NetPC specification. This specification addresses the real issues surrounding cost of ownership. And it offers a real solution based on three important customer-driven concerns: applications and performance compatibility, support for existing investments, and adherence to open standards. That last one—adherence to open standards—is especially critical. They are open standards that encourage new technologies to emerge within the frameworks of existing environments and allow customers more product choices.

We're ready for this smarter way to work with our OptiPlex products. Fully NetPC configurable, they offer the price and flexibility our customers have asked for. How do we know? Because our customers tell us. 50,000 times a day.

**Hewlett-Packard: Better Productivity.** At HP, we believe the PC can be a tool for change. Dramatic change. Not only in the way people interact with it, but in the way the PC can lower costs throughout an organization. That's why we joined Microsoft in the development of the NetPC specification. And from that specification, why we built the HP Net Vectra PC Series.

For end users, the HP Net Vectra PC will deliver the same functionality as a traditional PC—for example, it will run Microsoft Windows and more than 100,000 applications. But from a company-wide perspective, the HP Net Vectra PC will not only cost less, it will lower costs in new ways, through centralized management capabilities. And it will include additional, complementary management features like HP TapTOOLS.

At HP, our goal is to provide the right technology at the right time. From VAR-configured solutions like Windows NT Servers running the BackOffice-family to the HP Net Vectra PC, we're continuing to do what we've done all along: improve customer productivity. And profitability.

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## Corporate Strategies

Case Studies • Trends • Outsourcing

## Briefs

## Sales-based pay

Under an innovative IT outsourcing deal, Sage Life Ltd. in London will pay Electronic Data Systems Corp. for information technology services based solely on a percentage of its revenue from insurance sales. An EDS official said the sales-oriented fee structure could deliver to EDS up to \$10 million in savings over the life of the 10-year contract. Sage Life's 30 IT staffers will be transferred to EDS. Sage Life has been outsourcing its IT operations to EDS for several years.

## Recovery options

IBM has rolled out two business recovery scenarios that redirect network traffic when a host machine goes down. A distributed recovery solution, called "Internet Traffic," allows an IBM host client to redirect host traffic. The Managed Data Network Services relocation users' addresses to a backup host in the event of failures. Prices for each service start at \$500 per month for 100 MBps, increase to \$1,000 per month for 200 MBps, and \$1,500 per month for 300 MBps.

## Cost reduction planning

Enterprise resources planning vendor Intersoft Corp. in Fitchburg, Mass., has released the latest version of its software system, The World Wide Web-enabled product now designed to allow fast and seamless, certified and pharmaceutical industries to use Internet technology to communicate with suppliers and customers.

Pricing ranges from \$4,000 to \$15,000 per unit. The system is available now on Windows NT or Unix environments.

## THE HIGHEST DEGREE

Doctorates earned during the past five years in the U.S., Canada

Computer science	5,500
Computer-security related	16

Source: U.S. Census Bureau (1994); information of the Internet Technology Subsector

## IS women near parity with men

► Peace between sexes reigns, but attitudes differ

By Laura DiDio

THE FRENCH AFFORISM "Vive la difference" is proving true for the growing number of women who are joining the ranks of IS managers, where their very presence is fostering change.

Information systems managers contacted by Computerworld said women in IS, once a rarity, are now common.

The number of female IS managers in the U.S. has risen from just 4% in 1985 to 23% today, according to the Department of Labor. Similarly, the number of minority managers

in the workforce now stands at 17%, up from just over 1% in 1985.

A 1994 study, The Equity Equation by Cross University Research in Engineering and

## IS GENDER ISSUES

Science, found that women comprise nearly 30% of systems analysts and computer scientists and 35% of all programmers. Women make up 45% of the overall workforce. In some IS departments, they are even a majority. But gender-based perceptions linger.

## POINTS OF VIEW

An informal poll of 150 male and female IS professionals tak-



en two months ago at the Women in Technology International, Inc. (WITI) World Wide Web site underscored the differences in attitudes that the sexes have relative to the positive skills and barriers to success in the work-

place, said Carolyn Leighton, WITI's executive director.

For example, male senior managers said they valued communications skills, integrity and a proven track record as their

Women, page 42

## IT plan has Whirlpool spinning

By Thomas Hoffman

SOPHISTICATED geographic routing software is helping Whirlpool Corp. consolidate 23 field service offices into a single hub operation, slashing millions of dollars in real estate costs in the process. But not without creating some thorny personnel issues.

The \$200,000 Resources in Motion Management System (RIMMS) from Lightspan Group in Mineola, N.Y., is expected to help Whirlpool manage and coordinate its 440 appliance technicians across the U.S. from one service hub in Knoxville, Tenn.

The Benton Harbor, Mich.-based appliance maker has already consolidated seven of its 23 field locations. The remainder will be brought into the fold by year's end.

Whirlpool is replacing the colored pins and giant wall maps that have been used in its regional service centers for years.

Automation will mean dis-

Whirlpool, page 42

## Bank cuts turnover by matching workers, jobs

► IS staffers reapply for new leadership roles

By Julia King

PLACING a people-oriented IS professional in a head-on coding job is like playing a crack ball game in left field.

It is a misuse of talent that can ultimately sabotage a project's progress and drive worker satisfaction into the cellar.

That is one of the costly errors that Bank of Montreal seeks to eliminate under an innovative cross-functional process that requires staffers to

Group interviews, (see story, page 42) are part of a total re-amp of the company's 1,000-person IS department, which is migrating from a cost center to a project-focused profit center.

Since last July, the bank has identified and posted four new IS roles and the behaviors necessary to succeed in them.

It also has interviewed more than 130 staffers. Of those, 73 matched the new roles for which they applied.

The rest of the employees either matched to a different role or remained in their current positions.

"My initial reaction was that it was weird to be already doing in some ways," said

Bank, page 42



Bank of Montreal's Mary Jo Mink, who interviewed 73 staffers for potential leadership behavior in IS staffers

apply and interview for key leadership roles on information systems projects teams.



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### Net resource planning

Enterprise resource planning vendor Marcam Corp. in Newton, Mass., has released the Internet version of its software system. The World Wide Web-enabled product was designed to allow food and beverage, chemical and pharmaceutical industries to use Internet technology to communicate with suppliers and customers.

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in the workforce now stands at 27%, up from just over 1% in 1985.

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Whirlpool, page 42



Photo courtesy of WITT

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Bank, page 42



A service plan could mean more work for Whirlpool technicians



Bank of Montreal's Mary Lou Mukozallie

Interview panels looked for potential leadership behavior in IS staffers

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# Bank reduces turnover by matching workers, jobs

CONTINUED FROM PAGE 41

Lorne Lum, a systems specialist who applied for and landed a new project manager's role.

But later, after he was debriefed on what panel members thought about him, "the whole process really made sense to me. It was an opportunity for me to learn about myself and what value I add," Lum said.

"We didn't ask what they did before but instead looked at their behaviors" and how they

corresponded to various leadership behaviors. said Mary Lou Hukalek, vice president of human resources for IS at the bank.

Bruce Hopkins, a senior manager in the bank's insurance operations, has sat on several panels as an interviewee. He acknowledged that the pro-

**The average time on the job for Bank of Montreal systems and applications workers is 42 months.**

cess can be intimidating for the IS staffer "when they go into a room and five people are grilling you."

But he also said having a business person on the

panel is a tremendous signal. "It shows that internal users are making decisions about who gets those jobs. It also sends a message about what's important and why the bank is changing its entire [IS] structure," Hopkins said.

"What we really want is for our workforce to find out what their passion is and then do what they want to do," added Leslie Arzil, an external recruiting and human resources consultant who sits on the panel.

For example, Mike Lee, a systems specialist and 13-year IS veteran at the bank, didn't land a project manager's role he had bid on.

Instead, panelists determined that Lee is best suited to contin-

ue in a technical role. Lee agreed. "A project manager's job requires a certain level of administrative discipline, which is not something I enjoy. To me, it's a necessary evil," he said.

Applicants are queried by a panel that typically includes a business manager, IS manager and a peer who is in the same role that the candidate is seeking to fill. Leslie Arzil, an external recruiting and human resources consultant, also sits in on all panels.

The interviews usually last about two hours. Cookies are served, and applicants are asked about how they have handled various on-the-job situations. Prospective project managers, for example, may be asked how they had resolved a system design difference with a business user. A prospective resource manager, on the other hand, might be asked about methods used to regenerate a burned-out team member.

"If you don't pass through a panel, it doesn't mean you're worthless but that you're not matched to that particular job," said Mary Lou Hukalek, vice president of human resources for IS at the bank. — Julie King

left the bank as a result of the paneling process. In fact, the bank's turnover rate has dropped to below 5%. Managers also have discovered more than a few "pieces of gold" in the current interviewing.

"We had people who were doing very technically oriented things, but when they came to panel, we discovered they had good people skills and behaviors," said Margaret Van Dongen, manager of workforce transformation. To her, that proves the process works. "What it's all about is, where do you want to play ball and where do you best fit?" she said. □

## IS women are catching up

CONTINUED FROM PAGE 41

top priorities when hiring. Women respondents said they look first for team-building skills and decisiveness.

Michael Kearney, vice president of IS at Phoenix Home Life Mutual Insurance Co. in Enfield, Conn., agreed with the women. Kearney has nine direct reports, four of whom are women. He said after 16 years at an IS professional, he believes women bring more insight and teamwork to the workplace than men.

"Men get more frustrated more quickly than women," Kearney said. "The women in my department keep their cool when confronted with a problem and have more patience in tracking down problems. They're also a lot less likely to take their frustrations out on the networking equipment," he said with a laugh.

Louise Sterling, information center manager at Phoenix Home Life, said the firm has a good mix of women and men in IS — "about a 60-40 ratio."

The numbers still favor the men, but the women command equal respect. "My male colleagues look at myself and the other women and judge us by what we know," Sterling said.

But some companies still find the sexes talking too in one direction.

Take the case of Atlanta-based Kaiser Foundation Health Plan, Inc., which companywide employs more women than men in its 90,000-employee roster.

The lone exception was the IS department, said Gary Wilkerson, a former program and ex-

ternal services administrator at Kaiser. "It was pretty much a male bastion," said Wilkerson, now an analyst at Garner Group, Inc. in Stamford, Conn. He said the men were naturally well-versed in dealing with women in the workplace because Kaiser had many female employees and high-placed female executives.

### WORKS BOTH WAYS

Ironically, when the pendulum swung the other way and Kaiser began to admit women to IS in greater numbers, it was the men who grumbled.

"For a while, when we had a new position to fill in IS, all us men would joke, 'What's her name?'" Wilkerson said. Kaiser proved an egalitarian for its male employees as it was for its women. After the men complained, the company instituted some counseling classes and "the situation resolved itself," he said.

The WITI poll indicated that although women may be making more inroads into the IS workforce, senior male managers said the men in their organizations make a greater contribution to the bottom line.

Leighton said the survey results raised as many questions as they answered.

The women and men had different answers and criteria for nearly every question, including barriers to success for senior management and specific skill sets. "I have to wonder when women and men talk about the ability to communicate, are they really talking about the same thing?" □

## Whirlpool IT plan has heads spinning

CONTINUED FROM PAGE 41

patchers may lose the intimate knowledge they had of local routes and traffic trouble spots.

But with the manual system, it sometimes took dispatchers a full day to find a daily service route for a single technician.

Using RIMMS, Whirlpool dispatchers can lay out each technician's route within an hour.

### STICKY SITUATION

But the consolidation has presented Whirlpool with some tricky personnel problems. Under the service overhaul, technicians are being asked to cover new territories and squeeze in extra work in the same amount of time.

For example, RIMMS, with its street-level routing capabilities, has shortened technicians' daily mileage by 5% to 10% in preliminary tests, which in turn has reduced wear and tear on Whirlpool's trucks.

Whirlpool's technicians typically handle to customer call per day. The hope is that by uti-

lizing the most efficient routes from one customer call to another, each service technician will be able to squeeze in an extra customer job each day, said Tom Borek, a senior analyst at Whirlpool's LaPorte, Ind., parts distribution center.

Mender joined the 2-year-old project last August.

"Even if we can get an extra half a job a day, the [full-year] savings are staggering," Mender said. He expects to have a better handle on the productivity gains after all the service centers are folded in by year's end.

"Our biggest challenge has been managing the expectations of our technicians," Mender said. A spokeswoman for Whirlpool said RIMMS isn't expected to lengthen workdays for technicians, who are paid on an hourly basis.

Downsizing is another issue. Whirlpool's service center consolidation also means technicians probably need only five or six dispatchers, not the 24 it once used to support its field service

centers. Downsizing "is something we're wrestled with from the beginning," Mender said.

By centralizing and automating service centers, Whirlpool hopes "the quarks of knowing your home town," he said. Mender said the fate of its dispatchers hasn't been decided.

At least one dispatcher at Whirlpool's KitchenAid Factory Service Center in Boca Raton, Fla., said she isn't worried about losing her job. "I have no concerns," said a woman named Linda, who wouldn't give her last name. She referred all other comments to Whirlpool's corporate offices.

Whirlpool's staffing situation is common, according to one geographic decision-support consultant.

"You're asking fewer dispatchers to do more work using technology, and there's more stress on them. It's a tricky to deal with," said Larry Dunsel, president of Daniel Consulting Group LLC in Wimberley, Texas. □

# The Internet

The World Wide Web • Intranets • Online Services

## Briefs

### Lycos upgrades

Lycos, Inc. in Framingham, Mass., last week introduced a new search engine at [www.lycos.com](http://www.lycos.com) that will let users control the weighting of factors when they conduct internet searches.

The Lycos Pro Power Panel will let users prioritize any of six factors in their searches, including how often a keyword appears in a document, its appearance in the title and the keyword's appearance early in the text.

### Apartment security

CAIS Internet last week announced an internet access service that is up to 100 times faster than a 56Kbps/sec. modem.

But the catch is that this service, which is between light and wide blazes, requires a T1 line.

CAIS is offering consumers its fast Internet service that uses traditional LAN technology to users in apartment buildings. Upon the request of a local telecommunications carrier, the McAfee, Va., company will connect an apartment building with a T1 leased line, install an Ethernet switch in the wiring closet, and run the telephone lines for the network connection.

The user needs only a computer and an Ethernet card. CAIS Internet is a division of COX Communications, Inc.

### GAINING GOVERNMENT GROUND

Spending on Internet and bulletin board systems by the executive branch of the federal government:



Source: 42 federal organizations; doesn't include State Department  
Source: General Accounting Office, Washington

## Senate security bid irks tech groups

► Secure Public Networks Act's key-recovery component meets with opposition

By Sharon Machlis

IF YOU WANT to keep your private encryption key private, chances are you oppose a proposal moving through the U.S. Senate.

Groups that range from the Business Software Alliance to the Center for Democracy and Technology have blasted the bill—even though its supporters claim it protects private electronic mail exchanges from mandatory key-recovery plans. A mandatory plan would store individuals' encryption code/decode keys with a third party so the data could be accessed in

case the key is lost or destroyed—or needed by law enforcement officials.

The Senate bill requires a key-escrow system to be used throughout the U.S. government and by anyone who uses federal funds to buy encryption products or develop a communications network. The government would certify third-party key holders, but the measure says other private participation in the system is voluntary.

### MARCH TO KEY RECOVERY

"It's a compromise between the extreme and most extreme," said Marc Rotenberg, director of



Electronic Privacy Information Center's Marc Rotenberg

Secure Public Networks Act tends toward the extreme

the Electronic Privacy Information Group in Washington.

But co-sponsor Sen. Bob Kerrey (D-Neb.) challenged critics in an interview with Computerworld. "If you've got changes you want to make in the law, fine. Bring me language. But urge Congress to act... The status quo is unacceptable," he said.

Critics said the weight of fed-

eral requirements for government and government-funded networks will inevitably push the encryption industry to key recovery.

"It's The Godfather approach: 'Let me make you an offer you can't refuse,'" said Ed Black, president and CEO of the Computer & Communications Industry Association in Washington.

The Secure Public Networks Act, proposed earlier this month by Kerrey and Sen. John McCain (R-Ariz.), passed the Senate Committee on Commerce, Science and Transportation two days after its introduction.

"Fourty-eight hours to ram it through [its first] committee," Black said. "They didn't let it sit out and be analyzed."

The bill now heads to the powerful Judiciary Committee before action by the full Senate. And Kerrey said that several

High-tech groups, page 46

## SkyMall guns for virtual shoppers at 30,000 feet

By Mitch Wagner

SKYMALL, INC., the company that puts catalogs in the seat-back pockets of passenger airliners, hopes to successfully make the transition from air-space to cyberspace with a virtual mail opening in September.

The announcement from SkyMall, a \$15 million company in Phoenix, comes soon after IBM—despite its far greater resources—announced it was shutting down its year-old virtual mall, World Avenue. World Avenue is the latest in a series of failures of virtual malls, a business model that has had a checkered past on the Internet.

### DIFFERENT APPROACH

But SkyMall executives said the company will succeed where others have failed because SkyMall has a broader marketing and advertising platform than previous malls.

SkyMall's catalogs appear in front of 375 million passengers on 70% of domestic flights in the U.S. The company also runs a shopping channel in business-



SkyMall's "Virtual Worldway" "Forty-four percent of our buyers are buying because they're bored"

travel hotels. SkyMall plans to promote its virtual mall extensively in its print catalog and on television.

"Forty-four percent of our buyers are buying because they're bored," said Robert Wosley, president and CEO of SkyMall. "Do these other online malls have a million airline passengers a day sitting there bored to death?"

Air passengers will be a captive audience to be sold on the benefits of Internet commerce, and later they'll visit the SkyMall,

SkyMall, page 46

### WEBMASTER WOES

## Tools promote homegrown intranets

By Barb Cole-Gomolski

PRODUCTS designed to let end users publish information directly to corporate intranets continue to roll out, creating a dilemma for information systems managers.

On one hand, giving end users the ability to publish information to the intranet takes a burden off webmasters and may result in fresher data.

But most companies have invested time and money developing the look and content of their intranets and don't want end users interfering with that.

There are concerns, too, that end users could post information that is either inappropriate or confidential.

Bryan Frederick, an electrical engineer in the telecommunications group at Unocal Corp.,

Homegrown, page 46

## Maricopa to air public records

By Laura DiDio

In one of the largest initiatives of its kind, the Maricopa County Recorder's Office in Phoenix will go online this week with a Microsoft® SNA Server-based World Wide Web publishing system that lets the public access records via the Internet.

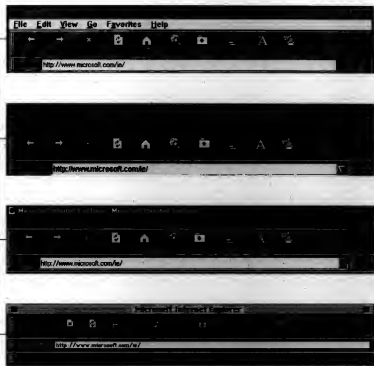
The county of more than 2.5 million residents wanted to provide citizens and county agencies with instant access to official records that are "in the public domain," a spokesman said. These records include real estate deeds, wills and death notices.

Microsoft Corp. installed SNA Server on its IBM AS/400 host system; FileNet Corp.'s FileNet; an image viewer; and Web Data Corp.'s Applegate Live Web publishing tool to give the public images of all county records since September 1997.

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## SkyMall guns for virtual shoppers

CONTINUED FROM PAGE 43

World Wide Web site while on the ground, Winerley said.

SkyMall's Internet mall will feature products from the 60 merchants that offer products through SkyMall's paper catalog.

### Finding a happy medium

Although many virtual malls have failed — including his own — the business strategy is a sound one, said Kirk Loeferer, president and CEO of the Internet Shopping Network (ISN).

"Any given user is only going to go to six or eight locations on the Web repeatedly," Loeferer said. "If you're not in one of those locations, you don't have traffic."

ISN, in Palo Alto, Calif., is a subsidiary of Home Shopping Network, Inc. ISN was one of the first companies to fail with an online mall.

The problem with most virtual malls on the Internet is that they do either too much or too little, Loeferer said.

Some provide a single Web address that aggregates multiple stores without publishing them — in which case, the merchant might as well simply use his own store on the Web and cut out the middleman, Loeferer said.

Other virtual malls, such as IBM's defunct World Avenue, are run by technology vendors who lock in their customers to their technology, Loeferer said.

ISN had its own online mall for consumer goods when it was first established on the Web in 1996, but the company soon gave that up in favor of offering computers and consumer electronics online. — Mitch Wagner

log, including Brookstone, Inc., Hammacher Schlemmer, Sharper Image Corp. and The Wine Enthusiast. The online mall will use the same back-end systems for credit-card verifica-

tion and fulfillment as it does for the catalog. The systems are run by LittleNet in Lowell, Mass. The mall will run on servers maintained and connected to the Internet by MCI Communications Corp.

Analyst Nicole Vanderbilt of Jupiter Communications, Inc. in New York said publicity and marketing are essential to an Internet mall's success, and lack of those elements has been key to the failure of many such malls.

### BONUS MILES

Internet malls have to provide merchants and consumers with some added value for the mall concept to be successful.

For example, Virtual Emporium, Inc. in Santa Monica, Calif., ties together a virtual-mall concept with brick-and-mortar stores within real malls in Santa Monica and New York. Shoppers can walk into the stores, sit down at terminals and shop on the Web. Virtual Emporium provides advertising that benefits all the stores, Vanderbilt said.

The geographic values that you get in a real-world mall, of all the stores being in one loca-

tion, don't work on the Web," Vanderbilt said. "A simple list of merchant sites is no more valuable to merchants or consumers than stand-alone sites."

IBM officials said the company didn't advertise World Avenue and eventually shut it down because it failed to fit into IBM's overall strategy.

World Avenue was too broad a stretch; it put IBM in the business of doing retail sales of non-computer goods, said IBM spokesman Eric Armstrong.

Two early Internet malls were

spectacular failures: MCI's MarketplaceMCI, launched in 1995, and MecklerWeb from Mecklermedia Corp. Indeed, MecklerWeb never got off the ground. Westport, Conn.-based Mecklermedia made a splashy announcement in 1994, but it pulled support for the project just days afterward.

Other malls, including Mail from Mail, Inc. in Studio City, Calif., and DreamShop from Time Warner, Inc., have remained open, but they haven't attracted a wide audience. □

## High-tech groups sound off against crypto bill

CONTINUED FROM PAGE 43

Judiciary members are more hard-line, favoring mandatory key escrow.

The Kerry-McCain bill basically kicked off a civil industry-backed measure dubbed ProCODE (Promotion of Code of Online in the Digital Era) that would force more liberal provisions on key recovery and the export of strong encryption.

Kerry said he introduced his version because other proposals were making little headway. He said it is crucial to get a federal law in place that strengthens security on the Internet, both to encourage private business on the World Wide Web and allow sensitive government functions such as filing tax returns.

The greatest threat to security and privacy in cyberspace isn't the government, Kerry argued, but private electronic eavesdroppers and hackers.

### INTERVENTION

But many in the information technology business are wary about government key recovery.

Robby Chowdhury, vice president of technology at United Media, Inc. in New York, likened it to tape-recording conversations. "It would be giving up our right to not be taped," he said.

Chowdhury said encrypted Internet credit-card transactions are safer than handling one's physical card to a waitress. "I have no real idea what she's doing with my slip," he said.

"There's a proper role for government in trying to [enable] electronic commerce," said Elieen Kent, vice president of new media at Playboy Enterprises, Inc. in Chicago.

But she stopped short of en-

dorsing a key-recovery scheme. "It makes me nervous because it can be abused," she said.

Kerry said it is important to come up with a measure that the Clinton administration will support, "or you have nothing. All you have is a press release." □

### Key provisions of the Secure Public Networks Act

- Encryption products produced by the U.S. government — or with federal funds for use in "secure public networks" — must include key-recovery.
- The government can't mandate key recovery among private individuals.
- The government may register key-issuing authorities and key recovery agents.
- Encryption with up to 56-bit keys can be exported under a license exception. Longer keys must have a key-recovery plan.
- Stronger encryption can be exported without key recovery by presidential executive order. The Department of Commerce also can "consider" such exports if similar products are already available elsewhere.
- An Information Security Board comprising government and industry members will advise on encryption and privacy issues.
- Decrypting someone else's data without proper authority and using encryption to aid any criminal activity become federal crimes.

## Homegrown intranets

CONTINUED FROM PAGE 43

Lafayette, La., uses Net-It Central from Net-It Software, Inc. in San Francisco to automatically update intranet information collected from pipeline monitoring equipment. The software will be announced this week and will ship by the end of July.

"We are our own webmasters," said Frederick, who explained that Net-It Central automatically updates intranet data by gleaming information from Microsoft Corp. Word and Excel files on workers' desktops. Prior to Unocal's use of Net-It Central, the reports "to have the files, users would have needed a network connection and the software package that was used to create the files, Frederick said.

Rikil Getty, a webmaster at The Boeing Co. in Seattle, said tools such as Net-It Central couldn't be useful, but webmasters shouldn't be totally bypassed. "I'm for this [type of product] because the whole idea [of the World Wide Web] is to get information out quickly without get-

ting a team of experts involved," Getty said.

With Net-It Central, documents can be published to the intranet in their native file format instead of being converted to Hypertext Markup Language. Also, workers "can tap in to the files using just a Web browser."

It might be appropriate to use Net-It Central to let subject matter experts do a first draft of a report that is then checked over by the intranet team, Getty said. "We have a look and feel for our intranet that we like to maintain," he said.

Net-It Central's most likely competitors will be Web publishing tools and offerings such

as Microsoft PowerPoint for Java, said Nathaniel Palmer, a senior consultant at Delphi Consulting Group in Boston. "But with most of those other tools, you need a plug-in or the application itself to view the document," Palmer said.

Lotus Development Corp. is also trying to make it easier for departments in large companies to build intranets. Last week, it announced Domino Intranet Starter Pack, a \$1,695 bundle that has a Web server, browsers or Notes clients and its intranet applications.

Net-It Central costs \$1,095 to \$6,095, depending on the number of documents to be managed. □

### HOW COMPANIES USE NET-IT CENTRAL

Company	Use
7-Eleven Canada	Publishes daily and monthly sales reports
High Point Regional Health Systems	Publishes and maintains policies and procedures
University of Michigan	Extends its intranet to all departments in a 400-person research facility
Unocal	Publishes near real-time data collected from pipeline monitoring equipment

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Lexmark Optra S 1250  
Lexmark Optra S 1650



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# The Enterprise Network

LANs • WANs • Network Management

## Briefs

### Colubian Systemics

Colubian Systemics, Inc., in Durham, N.H., has announced a partnership with Optimal Networks Corp. in Palo Alto, Calif. The goal: Expand the scope of Colubian's Spectrum network manager by integrating Optimal Networks' tools for analyzing application performance.

### Conex Systems

Conex Systems, Inc., is testing software that would let it remotely monitor or replace a server on a corporate network. Conex Systems Manager offers the same capabilities as a direct connection, but the firm-based tool is simpler to use and more reliable in remote access management, says the company. The server will run on Windows NT or Sun Microsystems, Inc.'s Solaris.

### Wellstream Systems

Wellstream Systems, Inc., in Cambridge, Mass., said it is looking to network performance monitoring products to analyze multimedia traffic. A partnership with PacketWorld Corp. should yield an option for Wellstream's customers to analyze multimedia traffic. It is managed to be able to capture any data going for applications that integrate voice, video and data over IP networks.

### TERMINAL SERVER SHIPMENTS

A terminal server lets multiple terminals access a host over one LAN cable. It eliminates the need for multiple point-to-point cable connections.

#### Worldwide revenues:



Source: Dataquest, Inc., Research Triangle Park, N.C.

## More firms outsource remote support

### IS hopes to cut big access bills

By Bob Wallace

SOME INFORMATION systems managers aren't even remotely interested in forming and running remote access programs.

They are turning instead to outsourcing, which they believe will save them time, money and manpower. Outsourcing is increasingly attractive as compa-

nies support more telecommuters and mobile workers.

"It's a natural to off-load management and maintenance when you look at the volume of hardware that you have to manage," said Brad Albers, senior manager of information services at The Home Depot, Inc. in Atlanta. "We're looking to support the increasing communications needs of merchandisers and district managers, but ease of use is not very good when it comes to installing software on clients."

The Home Depot is close to selecting an outsourcing firm for remote access. Contenders include AT&T Corp., Sprint Corp. and IBM. "We're looking for the company with the best international coverage, as our next wave of expansion will be outside the U.S.," Albers said.

Oklahoma State University officials face a similar choice.

"Cost issues would put a strain on resources here, and that's a risk we don't want to take, especially since we're not real close to being fully staffed," said J. L. Albert, director of computing and information services at the school in Stillwater. "We'd

**"It's a natural to off-load management and maintenance."** — Brad Albers, The Home Depot

### Users applaud plan to rent Internet apps

By Barb Cole-Gomolicki

LOTUS DEVELOPMENT Corp.'s plan to push Domino as a platform for rentable Internet applications is supposed to appeal to midsize businesses that can't afford to run their own Notes networks. But information systems managers at large Notes companies said they like the concept.

"We already have our [Notes] infrastructure in place, but these may be applications that we'd give to our customers or

business partners," said Jeff Schnable, director of infrastructure technology at Unilever North America Foods in Englewood Cliffs, N.J., a large Notes shop.

The main attraction for rentable groups is that it could prove to be less costly than custom applications.

Also, users aren't required to have Notes clients or servers onsite. Instead, they tap in to the applications running on an Internet service provider's Domino servers using a World Wide Web browser. Rentable groupware may fit the bill when it comes to collaborating with companies or individuals that don't have groupware or don't have Notes. McDonald's Corp. in Oak Brook, Ill., is considering rent-

**Vendors have priced their offerings between \$10 and \$25 per month per user**

Users, page 52

### Road warriors strain help desks

By Mindy Hladetz

ROAD WARRIORS with broken laptops. Remote workers with network connection problems. Supporting remote and mobile workers is a growing headache for IS departments.

Infonetics Research, Inc., a network technology research company in San Jose, Calif., estimates that information systems staffs spend about a third of their time configuring remote equipment and 40% troubleshooting for remote and mobile staffs.

#### COST, TIME SAVINGS

Many companies are turning to outsourcing as a way to support road warriors without spending money on boosting staff and retraining, according to research firm International Data Corp. (IDC) in Framingham, Mass.

That is what Memorial Health Care, a Worcester, Mass.-based health care system that encom-

Help desks, page 52

**"Cost issues would put a strain on resources here."** — J. L. Albert,

Oklahoma State University

rather put our money in network infrastructure." The school is close to selecting an outsourcing firm, Albert said.

Remote access demand is very large at the school, which has more than 15,000 students who live off campus and only 3,500 who live on campus.

"In fact, two years ago we put in 32 modems without announcing it," Albert said. "The students found them and saturated the buses before we had finished testing them."

Remote support, page 52

## Department firewalls can hamper management

By Patrick Dryden

DEPARTMENTS KEEPING out bad guys. Firewalls can block caretakers who must monitor vital networks, systems and applications.

Firewalls typically guard the perimeter of an organization. But both information systems managers and external service providers can get at it when sensitive departments put up their own firewalls.

In either case, firewalls must be configured to allow passage of management traffic. Administrators can't manage what they can't see.

The problem is rare but in-

Firewalls, page 52



# The Enterprise Network

LANs • WANs • Network Management

## Briefs

### Cabletron Optimizes

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### Router browser

Cisco Systems, Inc. is testing software that would let it remotely manage its routers from a browser on a corporate intranet. Cisco Router Manager uses the same capabilities as a Telnet connection, but the forms-based tool is simpler to use and more reliable to run across congested networks, beta testers said. It should ship next month. The server will run on Windows NT or Sun Microsystems, Inc.'s Solaris.

### Multimedia monitor

MetScout Systems, Inc. in Chelmsford, Mass., said it will extend its network performance monitoring products to analyze multimedia traffic. A partnership with Picturix Corp. should yield an option for MetScout's namesake diagnosis tools. IS managers would be able to optimize service quality for applications that integrate voice, video and data over IP networks.

### TERMINAL SERVER SHIPMENTS

A terminal server lets multiple laptops access a host over one LAN cable. It eliminates the need for multiple point-to-point cable connections.

Worldwide revenues:



Source: Datacube Group, Portland, Maine, Calif.

## More firms outsource remote support

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Firewalls, page 52

### WALLS WITHIN WALLS

Sometimes a sensitive department such as accounting erects a firewall to block access from others inside or outside the organization.

Problems: Central managers can't penetrate the internal firewall with their tools to monitor network and systems.

Solutions: Absolve IS manager of responsibility for these departments. Or request that lead vendors work with firewall vendors to gain pass-through capability.



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# Remote support

CONTINUED FROM PAGE A9

Users can save about 28% by outsourcing remote access, said Kitty Weldon, an analyst at The Yankee Group in Boston.

For example, it costs an average of \$5,744 per person up front and \$a.844 per person annually to support analog remote access, Weldon said. Outsourcing costs slightly more up front — \$5,849 per person, but much less annually, at \$1,666 per person.

A user who outsources remote access for only 20 people saves \$31,406 annually.

The savings are greater with

Integrated Services Digital Network (ISDN) remote access. The cost savings come from shifting ongoing management and maintenance to the outsourcer.



# Users like app rental

CONTINUED FROM PAGE A9

able groupware as a means of collaborating with users. In Houston on the construction of some gas station/restaurants facilities, according to Aaron Wiltz, technical analyst at McDonald's. The fast-food giant is a heavy Notes user, while Texaco is moving to Microsoft Corp. Exchange.

David Marshall, a vice president at Patricia Seybold Group in Boston, said rentable Web applications are appealing because they transform the Web into a collaborative platform. "The question is, if you and I want to [collaborate] on the Web, how much are we willing to pay for it?" Marshall said. "Probably not very much."

Pricing for rentable applica-

tions is starting to gel. Lotus and other vendors have priced their offerings between \$1n and \$45 per month per user for each application.

Earlier this month at PC Express, Lotus and Interleaf, Inc., an Internet service provider in Houston, announced Domino Instant Tool Software Developer Kit, a tool for building rentable applications based on Domino. Lotus also rolled out Instant Teamroom, a collaborative project management application that initially will be available through Interleaf and Netcom On-Line Communication Services, Inc. in San Jose, Calif.

Earlier this month, Change-point International Corp., a subsidiary of Richmond Hill, On-

which maintains a watch on rooms full of modems and fields after-hours user complaints, Weldon said.

## REMOTE ACCESS PICK

Paramount Pictures, Inc. picked Bell Atlantic Nynex Integration (BANI) in Frazee, Pa., to handle its huge remote access needs.

"We're using BANI to handle ISDN circuit ordering and provisioning — which is a nightmar — equipment configuration and consolidation of our diverse systems," said Frank Mezza, a senior system analyst at Paramount in Hollywood. The firm seeks a remote access system that will eventually support 5,000 fax-fung executives. □

# Help desks strained

CONTINUED FROM PAGE A9

passes hospitals and clinics, decided to do so.

Since March, Memorial Health Care has used Telepartner, Inc., a Wallingford, Conn.-based company. Telepartner develops remote and mobile programs, provides help desk support and implements and supports remote and mobile programs. Another company that offers similar services is Mobile Computing Solutions, Inc. in Somerset, N.J.

"Basically, they take care of everything," said Bob Brander, director of communications at Memorial Health Care. "They provide the hardware and the software, the communications infrastructure — and they act as the help desk."

## MORE GOING MOBILE

Brander said the health care system was concerned about the cost of retraining and staffing a help desk as more health workers went mobile or were working remotely. It has 20 mobile workers but plans to have 700 to go remote and mobile workers within the next six months.

"We figure we are saving \$75,000 to \$100,000 a year by not doing this ourselves," Brander said. "The difficulty is that, often, workers who need

mobile assistance are working on the second or third shift from home after the kids have gone to bed — they need to know someone will be there to help them."

According to the Gartner Group, Inc. in Stamford, Conn., the five-year cost of ownership for laptops, including acquisition, administration and technical support, is \$13,000 higher than for desktops.

Traci Bair, an analyst at IDC, said more companies are investigating outsourcing remote and mobile support "as they try to make their workforces more productive."

"Mobile workforces put a burden on the IT department because they are diverted from their core tasks," Bair said. "If you go to outsourcing, you don't need to hire additional staff and do retraining. Outsourcing companies can also keep up with the pace of change in mobile technology. The question becomes, Do you want to do your help desk's job or go to a company whose core business is this support?" □

## NEW PRODUCTS

**LANART CORP.** has announced LANart Inspector for Hewlett-Packard Co.'s OpenView for Windows, a network management software.

According to the Needham, Mass., company, users employ a point-and-click interface to monitor the hubs and switches in a network. The logical view is divided into two window panes. The left pane shows network topology; the right pane shows each folder's contents. The product costs \$400.

**LANART CORP.**  
(617) 444-1954  
www.lanart.com

**SOFTWARE SHELF INTERNATIONAL, INC.** has announced Winsafe for Windows NT 4.0, Windows 95 and NetWare, software to help reduce PC ownership costs.

According to San Carlos, Calif., company, Winsafe lets information systems managers choose application and

desktop configurations to be used on network clients. The tool has less than 100 features in the system, per user. Features include central control over user access to settings and ways to eliminate security leaks.

Winsafe costs \$99.  
**Software Shelf International**  
(415) 619-8900  
www.softwareshelf.com

**E-TECH RESEARCH, INC.** has announced Golden Bullet PC 95 RVP, a 56K bit/sec internal data/fax/voice encoder.

According to the Fremont, Calif., company, Golden Bullet features full-duplex, speakerphone capability and is Windows 95-compatible. A headset is provided. The product features 1.4-KB bit/sec. fax and data throughput.

It costs \$150.  
**E-Tech Research**  
(510) 437-6700  
www.e-tech.com

# Firewalls can hamper managers

CONTINUED FROM PAGE A9

creasing as internal firewalls block access to confidential data," said Helen Vaynsky, management program director at Meta Group, Inc. in Westport, Conn.

According to officials at the network and systems management division of Hewlett-Packard Co., both users of its OpenView management tools and HP's own service organization have complained that they can't see inside some areas.

For example, those areas include accounting and personnel departments protecting salary data. Research and development divisions and financial groups also may disappear from management consoles.

Coordination is the key to managing through internal firewalls. The IS group and the security-conscious department must configure tunnels, or virtual connections, between the central management station and the nodes to be managed.

The Dun & Bradstreet Corp. At the 8,000 Corp., for example, an internal firewall separates systems that customers can access from the rest of the corporate network. Central IS can still maintain those servers, however.

"We put it up for the customer organization, so we made sure we could get through it," said Dan McGinn-Combs, a network and telecommunications

specialist fellow on assignment from Geac Computer Systems, Inc. in Toronto.

The firewall allows traffic between a management console and targeted devices, defined by specific IP addresses and restricted to certain ports.

"In this environment, the research, human resources and other groups trust IS to manage their data," McGinn-Combs said.

But in some cases, the department may not want to allow any access through its firewall.

"The group must have good reason not to trust others, so the internal firewall has a purpose," said an IS manager at a manufacturer, who asked to remain anonymous. "Management isn't a problem if they don't want or expect IS to be let in either." □

# Software

Client/Server • Development • Operating Systems

## Briefs

### Sequel-link Java

Informatica, Inc. in Redwood City, Calif., last week announced a Java version of the Sequel-link middleware for connecting and moving to relational databases. Sequel-link Java Edition is available now. Pricing starts at \$4,999 for a five-user license. It runs on World Wide Web servers, downloading Java-based data-access applications to end users as they try to connect to databases.

### Smart patents

Carlson Corp. in Wilkes-Barre, Pa., has much released a new version of its SmartPatents database development software that can pull information from production databases running on Windows PCs, Unix and IBM AS/400 systems. SmartPatents 3.0 includes a new user interface and 12 modules. Prices range from \$2,500 to \$15,000.

### Database superusers

Trying to keep up to speed in the database services industry, Sun Microsystems, Inc. has opened one of its Information Superusers privileging centers in New York. The Media Park, Calif., company hopes the superusers concept will attract new database customers by key applications in data warehousing. But a 5101-mile first-quarter has prompted inquiries to slash the number of privileged superusers from 20 to 14.

### OpenIngres recovery

Computer Associates International, Inc. has released a new version of the OpenIngres database that initially runs on Windows NT and Sun Microsystems, Inc.'s Solaris operating systems. As expected, OpenIngres 3.0 adds tighter links to the Internet, Java client links and several features that users have requested for years, such as row-level data locking and server-based replication (CW, April 21). Prices start at \$99 per user. CA, in Redwood City, Calif., also added its Unimark TMC enterprise management software support for managing OpenIngres 3.0.

## Java database support scarce

► IBM offers support; Oracle, Microsoft, Sybase offer promises

By Craig Steadman

IF YOU'RE WAITING for the ability to write triggers, stored procedures and other database server functions in Java, don't hold your breath.

IBM is the only maker of relational databases that offers server-level Java programming. That kind of Java support lets users reduce their reliance on proprietary programming languages, which could minimize the need for trained specialists and prevent database lock-up.

But Java server support is still on the horizon for other data-



Using PL/SQL language "basically locks me in to Oracle"

base vendors. For example, the Oracle6 database that Oracle Corp. shipped last week won't provide Java programming ca-

pitabilities until a second release comes out next year. The first release is limited to connecting client-level Java applications to the database.

Michael Prince, chief information officer at Burlington Coat Factory Warehouse Corp. in Burlington, N.J., said the lack of up-front Java support in Oracle6 "is a bigger disappointment for me" than the recent delay of Oracle's Sedona object development tool (CW, June 16).

Server-level Java would free Burlington Coat's developers to write stored procedures and other database functions in a general-purpose language that is object-based and doesn't require the specialized knowledge that Oracle's proprietary PL/SQL

Java, page 56

### DATABASE TOOLS

## Software keeps tabs on patents

By Wylie Wong  
New York

SMARTPATENTS, INC. recently released patent database software that helps companies track and capitalize on their intellectual property.

The SmartPatents Business Decision System lets companies track and analyze patents by combining that information with their finance, sales, manufacturing and human resources data, officials at the Mountain View, Calif., company said.

### MULTIPLE USES

Companies can use that information to license, trade or sell their patents; identify new areas for product development; or analyze competitors' patent activities.

SmartPatents' client/server database software is accessible from Windows PCs or via an intranet using a World Wide Web browser. The database contains all the patents issued by the U.S. Patent and Trademark Office since 1972. Companies can receive weekly or monthly patent updates on CD-ROM.

Fred Backer, Information Systems Database, page 56

## Price of NCR's Teradata engine comes down to earth

By Jankumar Vijayan

NCR Teradata is lowering the entry-price barrier

### NCR

Teradata license for up to 128 users starts at \$60,000 per quad-processor node for the first four nodes. Single-node license for unlimited users starts at \$48,000.

### Then

Entry price started at \$90,000. (For an unlimited number of users.)

PRICES OF NCR CORP.'s top-end Teradata data warehouse engine are heading for terra firma.

The Dayton, Ohio, company last week repackaged its data warehouse offerings and reduced entry-level costs by up to 35%.

The idea is to make Teradata more attractive to companies

weighing its offerings against other database vendors. The latest price cuts put Teradata in roughly the same range as database products from vendors such as Oracle Corp., Sybase Inc. and Informatica Software, Inc. NCR announced a new release of its Teradata relational database management system, with improvements in performance, throughput and

Price cut, page 56

### REVIEW ► Helix's Nuts&Bolts

## Tool kit sets up challenge to Norton's Utilities

By Lenov Bailey

FOR THE PAST FIVE YEARS, Symantec Corp.'s Norton Utilities has reigned unchallenged as the definitive system recovery package for DOS- and Windows-based PCs. Now, Helix Software Co. offers a serious competitor.

Helix's Nuts&Bolts matches Norton's file, recovery utilities, offering file protection, disk repair, disk optimization, registry backup and a system monitor/inventory utility.

Nuts&Bolts raises the ante with a series of complementary productivity and utility applications. The Helix package also offers system crash protection, a performance/desktop customization wizard, a program launcher, a virus remover, encryption tools and an Iomega Corp. Zip archive manager.

### NO MORE RESTARTS

Helix has evidently studied the strengths and weaknesses of the Norton disk utilities. The Nuts

&Bolts Disk-Minder application is programmed to avoid the annoying re-starts, that slow down Norton Disk Doctor and Microsoft

Corp.'s ScanDisk. Disk-Minder's ability to recognize non-ANSI file name characters means it does a better job cleaning up



Nuts&Bolts seems to reflect a lot of effort to improve Norton's disk utilities

corrupted file and directory entries. DiskTune is a faster disk optimizer than Norton's

Tool kit, page 56



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### Open warehouse

Carlson Corp. in Billerica, Mass., last week released a new version of its Passport data warehouse development software that can pull information from production databases running on Windows NT, Unix and IBM AS/400 systems. Passport 5.6 includes a new user interface and is available now. Prices range from \$45,000 to \$95,000.

### Database superstore

Trying to cozy up to users in the financial services industry, Inform Software, Inc. has opened one of its Information Superstore prototyping centers in New York. The Menlo Park, Calif., company hopes the superstore concept will attract new database customers in key applications such as data warehousing. But a \$200 million first-quarter loss prompted Inform to slash the number of planned superstores from 30 to 14.

### OpenIngres revamp

Computer Associates International, Inc. has released a new version of its OpenIngres database that initially runs on Windows NT and Sun Microsystems, Inc.'s Solaris operating system. As expected, OpenIngres 2.0 adds tighter links to the Internet, Java client links and several features that users have requested for years, such as row-level data locking and server-based replication [CW, April 2]. Prices start at \$235 per user. CA, in Ithaca, N.Y., also added to its Unicenter TNG enterprise management software support for managing OpenIngres 2.0.

## Java database support scarce

► IBM offers support; Oracle, Microsoft, Sybase offer promises

By Craig Strömman

IF YOU'RE WAITING for the ability to write triggers, stored procedures and other database server functions in Java, don't hold your breath.

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Burlington Coat Factory's Michael Prince: Using PL/SQL language "hardly locks me in to Oracle"

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Fred Backus, information systems Database, page 56

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corrupted file and directory entries. DiskTime is a faster disk optimizer than Norton's Tool Kit, page 56

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## REVIEW ► Helix's Nuts&amp;Bolts

## Tool kit challenges Norton

CONTINUED FROM PAGE 53

Speed Disk, and it contains options to speed up system performance.

The main question I had in testing Nuts&Bolts was whether the Helix recovery utilities would demonstrate the same reliability and accuracy as their Norton counterparts. The Norton Utilities have had featured competitors before, but Norton's Disk Doctor and Unformat have always been unsurpassed.

Putting Nuts&Bolts through a workout, I encountered several iffy anecdotal situations. A conflict with the Uninstaller-Mover component of PowerQuest Corp. Partition Magic resulted in Nuts&Bolts installing itself until I disabled the Uninstaller's "new program monitor." Also, "Nuts&Bolts DiskTune didn't automatically make a new Partition/FAT backup after rearranging a disk's file contents. Helix is adding this feature to a maintenance release.

## FAILED TO SAVE

During one disk disaster, the emergency DOS version of DiskMinder displayed "out of memory" messages. I wasn't able to save all the lost file clusters it found. In contrast, the DOS version of Norton Disk Doctor was able to handle the situation.

The usefulness of the Nuts & Bolts supplementary applications don't let down Helix, either in the best crash protector I've seen. It allowed me to use a beta version of Netscape Communications Corp.'s Com-



## REVIEW ► Nuts&amp;Bolts

Helix Software Co.  
Long Island City, N.Y.  
(718) 392-3100  
www.helixsoftware.com  
Price: \$49.95

puter without worrying that all of my HyperText Markup Language code would disappear during the program's inevitable crashes.

Also, you can use the Nuts&Bolts registry tools to clean or optimize the Windows system registry—removing entries for orphaned Dynamic Link Libraries and compacting the physical space the registry occupies on disk. EZSetup lets you customize Windows start-up defaults and desktop settings unavailable in the regular Windows 95 Control Panel.

No disk-recovery application is foolproof, of course. Norton Disk Doctor/Image has its own set of eccentricities—after 10 years, the Norton quarks are well-known, whereas we are just learning about DiskMinder's capabilities and limits. Nuts & Bolts' generally effective file repair, excellent defragmenter and abundance of useful supplemental system utilities make it a competitive alternative to Norton Utilities. □

*Baillet is a reviewer in San Francisco. His Internet address is lennyb@slip.net.*

## Database software keeps tabs on patents

CONTINUED FROM PAGE 53

terms manager at Lucent Technologies, Inc. in Murray Hill, N.J., said the software will help his company, which holds thousands of patents, protect its intellectual property.

Backer, whose company used an earlier version of Smart-Patents, said searching for patent information with the new software will speed up workers' research.

"We need to know as much as possible about our own patents and see if any other companies are infringing on them," Backer said. "That's where we make our money, by telling companies, 'You're using one of our

patents. We want you to pay for it.'"

The previous version of SmartPatents was granted to word and patent lawyer and didn't have the business analysis capabilities that the new software has, Backer said.

"It's a great tool," he said. "Otherwise, some clerk would be in a storage room for two hours to find every patent didn't 20 years ago. With a click of the mouse, you can do it in 10 seconds."

Analyst Bob Chatham at Forrester Research, Inc. in Cambridge, Mass., said companies with several thousand patents

language does, Prince said.

"The only people with PL/SQL skills are the ones we've trained in Oracle," Prince said.

"With Java, I get much more flexibility to move people around on projects." Application developers plugged in to business needs could write database functions themselves, he said.

The ability to run Java code on multiple platforms also could reduce database lock-in, said Herb Edelstein, president of Two Crows Corp., a consultancy in Potomac, Md.

"Today, if I move from one database to another, everything I've written is lost," he said. "Java eliminates that as an obstacle."

## PATIENCE IS A VIRTUE

The Unis and Windows NT versions of IBM's DB2 database received support last fall for Java-based stored procedures and user-written functions such as currency conversions and multimedia plug-ins. But for users of other databases, patience is a necessary virtue.

For example, Sybase, Inc. doesn't plan to start beta-testing Java with its Adaptive Server Enterprise software until the first half of next year, although beta code is due this fall for the Emeryville, Calif., company's mobile database.

"We'd like to see [Java support] yesterday," said Merle Armstrong, a Sybase user and technical analyst at financial services firm Arm Financial Group, Inc. in Louisville, Ky. Java-based stored procedures

would benefit most from the software.

"For a company with a patent in the attic they're not capitalizing on, this could be worth a couple hundred million dollars a year," he said.

## FOREIGN DATA

Future versions of the Smart-Patents software will include patents from the European Patent Office and the Japanese Patent Office.

Price Waterhouse, a New York consulting firm, is working with SmartPatents to help businesses implement the software. Prices start at about \$50,000. □

## Java database support scarce

CONTINUED FROM PAGE 53

would be easier to maintain and upgrade than the proprietary Sybase procedures he is writing for a decision-support project.

Armstrong said. Users of other databases will also be waiting.

Microsoft Corp. won't put Java support inside its SQL Server database until late next year at the earliest, although the prod-

uct can call out to external stored procedures written to the Redmond, Wash., company's OLE object format in Java and other languages. Neither Informatica Software, Inc. in Menlo Park, Calif., nor Computer Associates International, Inc. in Ithaca, N.Y., would say when their databases will get the promised server-level Java support. □

## Going my way

Although some database vendors are going their own way on Java, others hope to get by with a little help from their friends.

Oracle and Sybase are both writing their own Java Virtual Machine (JVM) code for embedding in their respective databases. That's the only way to ensure that the database and JVM don't fight over system resources, said Michael Reagan, general manager of Sybase's database unit.

IBM and Informix beg to differ. Each is linking its software to JVMs in operating systems. That saves development time, said Herschel Harter, manager of database technology at IBM. And mandating a database JVM "is a bit like saying that we support C, so we have to use our own compiler," he said.

Consultant Herb Edelstein said users should get equivalent functionality either way. But vendors who use their own JVM code "will have to keep their eyes open" to make sure differences in operating system JVMs don't affect databases, he said.

"Anybody who believes all JVMs are going to be identical is kidding himself," Edelstein said. "All you have to do is look at Microsoft."

—Craig Stedman

## Price cut on Teradata engine

CONTINUED FROM PAGE 53

connectivity.

That's NCR's second major Teradata-related pricing action this year. In January, the vendor rolled back entry prices from about \$160,000 to \$50,000.

Under the new pricing, a limited user Teradata data license for up to 128 users starts at \$60,000 per quad-processor node for the first four nodes. Corporations can now get unlimited user licenses and more expandability at the previous entry price of \$90,000.

"From a new customer perspective, data warehouses can be a black hole into which dollars just disappear." If they aren't implemented properly, said Tim Vokes, a senior database administrator at Anthem Blue Cross/Blue Shield in Cincinnati.

"Customers need to be able to start with a relatively small investment and then expand as

their needs grow," he said, noting that NCR's latest packaging lets users go just that far.

Blue Cross/Blue Shield, which has just merged, with two other health maintenance organizations, is in the process of consolidating several databases and soon will be in the market for engines to run new data marts.

This is NCR's second major Teradata-related pricing action this year.

FEATURE-PACKED NCR's Teradata V12a release includes the following features:

- A performance-enhancing Synchronized Table Scan feature that lets multiple queries execute full table scans on the same table at the same time.
- A "Join Index" capability that helps users reduce unnecessary resource utilization in repetitive query environments.
- Better open systems connectivity through support of ANSI SQL-92 standard. □

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Common sense says this is the way it should work. But the deep dark secret of most messaging software is that when you hit the ceiling on its capabilities, that's it. You have to throw it away and start over. The cost, the aggravation, and the sheer inconvenience are enormous. For more information about Lotus messaging solutions, go to [www.lotus.com/worksweb](http://www.lotus.com/worksweb).

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# Servers & PCs

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## Briefs

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There are more places to  
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McDonald's, Wendy's and  
Burger King combined.

Source: Channel Marketing Unit, Dallas

## Citrix gives thin clients, old PCs a boost

► Improves security, performance of WinFrame

By April Jacobs

CITRIX SYSTEMS, INC. is boosting the security and performance of its WinFrame software, which allows older PCs or thin clients to run Windows and other types of applications from a server.

WinFrame 1.7, a free upgrade for users of Version 1.6, features new encryption, management and optional load-balancing features. It also will be compatible with a multuser Windows application being jointly developed by Citrix, in Fort Lauderdale, Fla., and Microsoft Corp.

Code-named Hydra, the new application will let users access and run Windows applications from the server more easily than with WinFrame. But current users, such as Bell Mobility

Corp. in Ontario, find that WinFrame also helps their bottom line.

Bell Mobility, Canada's leading wireless communications company, uses Citrix to run a variety of server-based applications on aging 386 and 486 computers. The company uses WinFrame in conjunction with the Citrix Windows NT-based product to increase performance.

### SERVER FARMS

Bell Mobility didn't want to invest in upgrading its desktop hardware. But it wasn't happy with the performance of certain applications, including imaging software that lets customer service employees process applications that come in from cellular dealers across the country.



The company instead set up server farms, scaling to about 20 users per server. It manages and deploys all of its applications from those servers.

Application processing time, with the help of dual 300-MHz, Pentium Pro-based servers, was cut in half, according to Dave Fratzen, Bell Mobility's manager of information systems.

Gartner Group, Inc. in Stamford, Conn., estimates that deploying Citrix and using a server-centric computing model such as Bell Mobility's can save companies as much as 35% of their desktop budget.

The software is also being implemented by Sears, Roebuck and Co. and the Public Defender's office in Orange County, Calif., which, like Bell Mobility, uses aging 386- and 386-based PCs as thin clients.

"WinFrame allows companies to migrate gracefully instead of having to make new acquisitions before their hardware has been fully amortized," said John Dunkle, president of Workgroup Strategic Services, Inc. in Portsmouth, N.H. "Until now, the only way to use PCs, Citrix makes a great deal of sense, particularly because the cost of obsolescence is so high." □

## Mainframes ripe for Web serving

► Firm gets mainframe for online book orders

By Tim Ouellette

WHEN BOOKSERVE.COM's Windows NT Web server began crashing with only about 350 orders each day, the online bookseller knew it had to bet its World Wide Web-based business on something stronger.

"We've mazed out our Windows NT server right now and don't see any immediate solutions to make it reliable for mass transactions," said David Mason, co-founder of the La Vergne, Tenn., firm.

### BACK TO THE FUTURE

So Bookserve.com turned back the clock and is installing an IBM S/390 mainframe — something it never would have even considered last year — to reliably manage book orders.

Mainframes, page 36

## CDs extend storage life for NASA data

By Matt Hamblen

A WORLD of paperless offices may be a distant dream, but Ashok Kohli, 42, wants to draw the line somewhere.

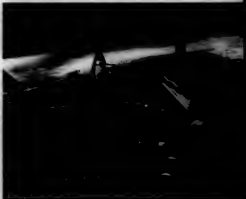
If we can't keep paper out of offices on Earth, he said, at least we can try to keep it out of the International Space Station when parts of it start orbiting Earth next year.

Kohli, a records management adviser at Boeing North American, Inc. in Canoga Park, Calif., works on Boeing's contract with NASA for the station's vital electrical power system.

### SAFE STORAGE

With a team of 25 people, he is busy scanning text and graphic and video images of anything connected with the electrical power system. The images are stored on compact disc so they can't be altered and can be moved safely for decades to provide technical references.

"I have to be able at a moment's notice to retrieve any data associated with a part, even if the vendor is out of business," Kohli said. "The station is going



to be up there for 30-plus years. So can you imagine, with all the hundreds of suppliers and thousands of parts, how intensive that is? It is a daunting task."

The data is already being stored on CDs for online use by the Kennedy Space Center in Cape Canaveral, Fla. and will also be available on ruggedized

CDs for use by astronauts aboard the station, he said. The first launch is set for June 1998 to begin making the orbiting science laboratory ready for a seven-person crew to live and work on in 2003.

A node that will be at the center of the space station was

CDs, page 66



# Servers & PCs

Large Systems • Workstations • Portable Computing

## Briefs

You want fries  
with that PC?

There are more places to buy PCs in the U.S. today than locations of McDonald's, Wendy's and Burger King combined.

Source: Channel Marketing Corp., Falls

### Big iron intranets

Bee-Tech, Inc. in Burlington, Mass., has introduced a line of servers that smooth integration between mainframes and intranets. NetShuttle servers are meant to replace expensive network routers as the gateway to the mainframe. NetShuttle servers support IP, IPsec, and World Wide Web browser access. NetShuttle is shipping now. Pricing ranges from \$10,000 to \$45,000.

### Storage television

Television station WUPA-TV in Atlanta installed Storage Technology Corp.'s MediaVault tape robotics system. The MediaVault, developed by the Louisville, Colo., company for the broadcast industry, can store up to 6,000 tape cartridges with as much as 60,000 hours of programming.

### Newer notebooks

Hitachi PC Corp. announced two new VideoBook Pro and Elite notebooks. The notebooks have 13.3-in. screens and 166-MHz MMX Pentium processors with a 2.1G- to 3.2G-byte hard disk drive and CD-ROM drives. The notebooks will range in price from \$1,199 to \$2,199.

### Customer support

Obidita in Mount Laurel, N.J., has announced around-the-clock, toll-free customer service and technical support for its printer customers. The toll-free hot line at (800) 654-3432 is joined by Obidita's Website ([www.obidita.com](http://www.obidita.com)), where users can send questions and the company promises a 24-hour maximum response time.

## Citrix gives thin clients, old PCs a boost

► Improves security, performance of WinFrame

By April Jacobs

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### Enhancements to WinFrame system software

- Better application management
- System security enhancements
- Launching and embedding of Web-based applications
- License pooling

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Records serve images for the International Space Station on CD.

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A note that will be at the center of the station space station

CDs, page 66

Mainframes, page 64





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# Mainframes ripe for Web serving

CONTINUED FROM PAGE A5

provide constant availability and leave room for the business to expand into video and game offerings.

Mason estimates that the mainframe will let Bookserve.com handle daily orders numbering well into the thousands without a hitch. The move is part of a complete systems re-serve, the low-end Windows NT server hadn't been upgraded since the company went online in 1995.

"Now we are coming at the [scalability] issue with tanks and jet fighters instead of peashooters," Mason said.

## OTHERS FOLLOW LEAD

And Bookserve.com isn't alone in seeing big iron in a new light.

Numerous mainframe shops have turned to the S/390 for developing intranets or Web pages. The reasons: Mainframes already control most business critical data, include integrated Internet tools and offer a secure and reliable platform that won't let a calling as Internet access grows (see chart).

In a recent report, Bill Carco wrote, "It's one thing to pro-

vide constant availability and leave room for the business to expand into video and game offerings. The move is part of a complete systems re-serve, the low-end Windows NT server hadn't been upgraded since the company went online in 1995.

Carco is president of consultancy ACTS Corp. in Kingsland, Texas.

## RELIABILITY TOPS

In Bookserve.com's case, reliability takes on added meaning because the company guarantees that customers will receive a book within 48 hours of placing an order on its Web page.

The site will officially move to the S/390 Web server in July.

"IBM wasn't even on our radar screen nine months ago, but they have done a remarkable job to come to the plate and offer solutions for Internet transactions," Mason said.

IBM's big iron Internet plans include the following:

- Adding secure Web server software to the OS/390 operating system (a basic Web server has been available since early last year).

- Making the S/390 a Java virtual machine in October so S/390s can execute Java applets right on the box.
- Shipping a cryptographic coprocessor this month in S/390 systems.

- Shipping a secure Internet firewall (8 Version 2 of the OS/390 operating system this fall to protect production data from Internet access).
- Rewriting the S/390 TCP/IP stack to improve Web-to-mainframe access.

While awaiting some of the new security features, many mainframe sites are starting off by creating mainframe-based intranets.

For example, Presbyterian Healthcare System in Charlotte N.C. is creating an online mall for its employees based on an S/390 Web server. On the intranet, employees will be able to order items such as health products, uniforms and exercise equipment from five local retailers.

Later, patients and outside customers will be able to do business with the hospital via the S/390 Web server, said Chief

IMR software provides a content management approach to the storage of data, meaning any file can be indexed and retrieved based on its contents and not its file name or path, analysts said. Every word on a document is automatically indexed meaning if someone types "RPCM" into a PC on the data network, all the documents about remote power control modules will appear.

## CD COSTS

CDs are less costly (about \$9 apiece) than other storage systems and are easily transportable, permanent and easy to distribute, Kohli said. With the CDs, Boeing can find data on file faster than if the information systems department had to find and load a backup tape, as has been the practice in the past.

"Plus, this is the permanent version, and there might be five versions on tape," he said. Kohli views his job as mission-critical — he is able to help astronauts and technicians during a mission quickly track the history of a troublesome part to avoid a space shuttle Challenger-like disaster or an Apollo 13 re-entry disaster.

"We can never forget a file might be at risk," Kohli said. □

## BIG IRON SERVES THE 'NET

Some users are turning their mainframes into Web servers for electronic commerce for the following reasons:

- Most critical business data is already stored on the mainframe.
- Mainframe scalability can handle growing Internet traffic.
- Mainframe applications were designed to work with thin clients such as Web browsers.
- Built-in mainframe security can be combined with IBM's new cryptographic coprocessor and upcoming OS/390 firewall capabilities.
- Data is safer on the mainframe because there are no servers.
- Internet tools are integrated right into the OS/390.

Information Officer Avery Cloud.

But don't expect a flood of new mainframe Web servers. Carco said the S/390 will still

lag behind Unix and Windows NT Web servers in new functions because most Web developers are on those platforms these days. □

## NEW PRODUCTS

**GLOBAL VILLAGE COMMUNICATIONS, INC.** has announced four 56K bit/sec. modem and modem/Ethernet PC cards for Macintosh and Windows notebook computers.

According to the Sunnyvale, Calif., firm, the Macintosh versions of the cards will let users monitor modem connection status. They feature enhanced hot-swapping so the card can be removed at any time without disrupting applications that rely on the network connection.

Pricing starts at \$239. Global Village Communications (408) 523-1000 [www.globalvillage.com](http://www.globalvillage.com)

**AWA AMERICA, INC.** has announced MicroArray 8000, a RAID subsystem with 8G bytes of capacity that fits into a standard 5.25-in. disk drive bay.

According to the Irvine, Calif., company, the MicroArray 8000 is compatible with all major operating systems and works on any host platform that supports the Small Computer Standard Interface. Pricing starts at \$8,991.

**AWA AMERICA** (714) 866-0200 [www.awa.com](http://www.awa.com)

**INTERGRAPH COMPUTER SYSTEMS** has announced InterServe 660TX, two Intel/Windows NT-based servers that can be obtained in a single chassis.

According to the Huntsville,



Intergraph's InterServe 650TX and 660TX

Ala., firm, the servers can be purchased with up to four 200-MHz Pentium Pro processors for uses that include high-volume World Wide Web services. Memory starts at 64M bytes.

Pricing starts at \$24,500. Intergraph Computer Systems (800) 763-0443 [www.intergraph.com](http://www.intergraph.com)

**EPSON AMERICA, INC.** has announced PowerLite 7000, a portable high-performance Extended Graphics Array projector.

According to the Torrance, Calif., company, the PowerLite 7000 weighs 14.5 lb. Its Chrono Lamp System is rated to last five years when used eight hours per week.

The price is \$12,999. Epson America (800) 467-7766 [www.epson.com](http://www.epson.com)

# CDs lengthen storage life for NASA data

CONTINUED FROM PAGE A5

moved into ready position at Kennedy last week.

So far, Kohli's team has stored more than a million pages of data on 60 CDs, which is about 15G bytes. The team faces a backlog of more than 5 million additional pages, which will fill another 250 CDs with 15G bytes. That many documents could easily fill a high school gymnasium. And that's only the electrical system.

Using CDs wouldn't be practical without software to make the data easily retrievable. Kohli settled on several packages from Information Management Research, Inc. (IMR) in Englewood, Colo. He purchased Alchemy Gold, ScanCD, CADxCD and DataGrabber, at a total cost of less than \$10,000.

## BEST FOR THE JOB

Kohli said he looked at many software packages, all much more expensive, and tried using Zylance software from Zylab



Boeing's Ashok Kohli works on the company's contract with NASA for the station's vital electrical power system

International, Inc. in Rockville, Md. But IMR provided a faster processing time and also could provide a way to drag and drop computer-aided design images easily into storage.

# Mobile Computing

Special Bonus Technical Section

## Briefs

**Notebook sales within the dealer channel**

Vendor	April '97	April '96 to April '97
Compaq	30.4%	136%
IBM	26%	-5%
Toshiba	23.3%	-14%

\*Percent change

Source: Computer Intelligence, April 1997

### Smart-phone users

Comcast, Inc. has licensed software developed by Spyglass, Inc., a more Comcast will give smartphone users a way to access World Wide Web pages. Smart phones are cellular voice telephones that can also transfer data. Spyglass' Prism software, conversion technology will let Web content be converted to a format that smartphone download those and is formatted for smartphone screens.

### Revenue stars

There are no dead ends in sight for mobile computing revenue, which is expected to soar during the next few years, according to a study by Frost & Sullivan, a market research firm in Mountain View, Calif. Revenue in that market totaled \$47.17 billion in 1995 and grew 35.5% to \$59.51 billion last year. The mobile computing market — which includes portable computers, pen computers, palmtops and peripheral products — is expected to hit \$69.61 billion in revenue by 2005.

### Modem upgrades

Siemens, Inc. is offering mobile 56K bit/sec. modem upgrades through an upgrade program. Participants can trade in any brand of modem or combination PC Card for a CreditCard modem 56, which will be installed this summer. The program includes a free flash upgrade to the final 56K bit/sec. standard. Upgrade prices range from \$99 to \$249 for 30 units, depending on modem configurations. Customers can register for the upgrade at the firm's Web site until July 31.



The Seattle Mariners' Sandy Stumpf says the team's remote access system provides richer and clearer comparative information than the team could compile before

## Mobile systems: It's a whole new ball game

► Scouts use laptops to prospect for phenoms

By Stewart Deck

THE ATLANTA BRAVES KNEW whom they wanted in the June 3 amateur draft. Out of thousands of promising young players scouted by the club, the Braves chose 18-year-old Troy Cameron, a smooth-fielding, power-hitting high school shortstop from Fort Lauderdale, Fla.

Cameron's name didn't magically appear on a list. The team's decision-makers were well aware of his abilities, which were described in detail in a few of the thousands of reports filed from remote locations by 27 different baseball scouts.

Cameron's name popped up after a week of intensive database queries. But as recently as 1990, the Braves made these types of decisions using enormous file cabinets stuffed with paper documents.

Our system gives us more quality time to talk about what we need to talk about — players

Laptops, page 72

### REVIEW ► Wireless service

## Users leap to Internet, LANs with Ricochet

By Chris DeVroy

METRICOM, INC.'s Ricochet wireless service is on target for any citywide traveler or campus-touring worker. Not only does the service offer complete wireless access to the Internet at reasonable prices, but workers also can gain wireless access to

their local office or corporate LAN. The only place Metricom misses the target is in the very limited geographic area it currently serves.

Los Gatos, Calif.-based Metricom's basic Ricochet service (\$30 per month per user, equipment extra) starts with full wireless access to the Internet, including electronic mail, World Wide Web and file transfer protocol sites.

For an extra \$5 to \$30 per month, a user can send faxes, make a regular dial-up connection when outside the wireless area and have complete access to a corporate LAN, through additional receive-only, wireless modems or a dedicated remote access server.

Metricom offers two wireless modems to access the network.

The standard modem (\$300) weighs about a pound and is about the size of a cigarette carton. The SE model (\$349) is the size of a Sony Walkman, weighs 10 oz. and offers twice the battery life of the original (about 8 to 12 hours vs. 6 hours maximum). Both modems attach to the serial port of the computer via a short cable.

Ricochet, page 72

## Wired cab driver uses GPS to find himself

By Suruchi Mahan  
SAN JOSE, CALIF.

A RIDE IN Carlos Olvera's cab offers a glimpse into the future.

A computer prompts you to make a turn at the appropriate street and beeps at you if you miss it. A 4-in. screen map display shows the car's projected route in magenta and street names in yellow.

The system can get you to the right house on the darkest street

on a moonless night.

And if experts are to be believed, Pathfinder, from Rockwell Driver Information Systems in Troy, Mich., may become a standard in the high-end consumer market in the next three to five years.

By then, experts say, the Global Positioning System (GPS) may be able to recognize voices. That would eliminate the need to keep pressing arrow buttons near the screen display to key in

GPS, page 72



REVIEW ►  
Metricom  
Ricochet Service

Metricom, Inc.  
Los Gatos, Calif.  
(800) 556-6123  
www.metricom.com

Price: \$29.95 per month,  
plus equipment





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plus equipment



Carlos Olivencia, a cab driver, uses a GPS system to find his way to a customer's house.

Mobile<sup>3</sup>



# CardBus *really* Connects

*3Com hits the market with the Fast EtherLink® XL CardBus PC Card,  
the fastest 10/100 connectivity in a new CardBus package. Pow!*

Give your mobile users a powerful punch. Outfit your new, 32-bit high performance CardBus notebooks with the fastest 10/100 PC Card on the market. Only notebooks supporting the CardBus standard provide full 100 Mbps network performance, and only 3Com combines a 32-bit architecture with lightning-fast Parallel Tasking\* technology that is a **68-24%\*** faster than other leading CardBus PC Cards.

The Fast EtherLink XL card not only packs a wallop with 100 Mbps throughput, it also supports 3Com's unique DynamicAccess™ features designed to improve overall network performance and manageability. Also, the Fast EtherLink XL card comes with a full lifetime warranty and is guaranteed compatible with leading CardBus notebooks. And here's another bell-ringer: 3Com's Fast EtherLink XL CardBus PC Card keeps your notebooks running extra cool and safe by drawing at least 50% less power than any other CardBus PC Card on the market.

Does the 3Com have set the standard for Fast Ethernet CardBus performance, who else do you need in your corner?

1-800-NET-3COM (option 4)  
[www.3com.com/pccard](http://www.3com.com/pccard)

\*Based on 3Com's Parallel Tasking technology. DynamicAccess is a trademark of 3Com Corporation. © 1999 3Com Corporation. For a full technical report, visit [www.3com.com/parallel](http://www.3com.com/parallel).

**3Com®**

## Laptops a hit for teams

CONTINUED FROM PAGE 69

— instead of fumbling through mountains of paper," said Roy Clark, the Braves' national scouting supervisor.

Every day from late February to October, hundreds of baseball scouts crisscross the nation, spending long afternoons on wooden bleachers at high school, college and minor-league parks. They take careful notes about players, all the time searching for the next Cal Ripken or Ken Griffey Jr.

"This is an information-based business, and whoever has the most complete information and can get at it the fastest has an advantage," said Jeff Parker, manager of baseball operations for the Anaheim Angels in Anaheim, Calif.

In 1992, the Braves began outfitting scouts with laptops from Compaq Computer Corp., loaded with a template-based reporting software and dial-up remote access capabilities.

The Seattle Mariners' scouts travel with Packard Bell NEC, Inc. Versa laptops. Each night they link up to the home office's Windows NT server and deposit reports about players' arm strengths, throwing accuracies and bat speeds into the team's SQL-based database. Sandy Stumpf, the Mariners' network administrator, said the team's system provides richer and clearer comparative information than the team could compile before. "I can pull out anything

now just by attaching to the [SQL] tables and pulling out customized reports," she said.

Initially, some scouts balked at the idea of filing reports by laptop and telephone connection. "Some of our most valuable assets are our older, long-time scouts. So we have to find ways to help them do their jobs easily," said Matt Slater, scouting administrator for the Baltimore Orioles. Most teams have accomplished this by setting up programs with simple pull-down template windows and demonstrating how the computer systems reduce the time it takes to write a report by half.

Because the scouting ranks are full of ex-ballplayers, one problem teams haven't been able to overcome is keyboard size. "A lot of these guys have very large hands and find the portable keyboards difficult to use," said Dave Hunter, the Florida Marlins' director of information technology. To deal with this problem, the Mariners — whose 35 scouts use custom-built software called ScoutPro, on Dell Computer Corp. laptops — will soon begin field-testing Windows CE ultraportables.

The systems haven't all been a home run success. The Angels' Jeff Hunter said his team's year-old system, which was built on IBM PC, Compaq ThinkPads connected to a Microsoft Corp. Access database through Windows NT Remote Access Service, still



The Baltimore Orioles' system could one day help find the next Roberto Alomar.

gives his reporting team of 35 managers, trainers and scouts headaches when they try to file reports over poor phone connections. Hunter said he hopes to have a solution soon.

The Orioles' Mark Slater said the value of these scouting systems is especially crucial in the

face of escalating player contracts. "With budgets the way they are now and the amount of money given to young players, there is definitely a lot of pressure to make good decisions. We've found computers to be a very useful decision-making tool," he said. □

## GPS helps drivers get around

CONTINUED FROM PAGE 69

the desired destination.

For now, that requirement is the major irritant in a device that otherwise draws high praise from those who have seen it.

"It was a delightful experience," said Bob Sakakeeny, an analyst at Aberdeen Group, Inc. in Boston, who first used it on a business trip. The device is installed as Hertz Nevelon in about 8,000 Hertz Rent A Car vehicles throughout the U.S. "Looking at the [paper] map, I couldn't tell [what were] the exits because they were in bizarre places. This purports it," Sakakeeny said.

The ability to pinpoint a vehicle's location has made the device a powerful navigational tool, according to Roger Stevens, general manager at Rockwell.

The GPS was built by the U.S.

Department of Defense and uses satellites to determine the location of an object. In Oliveira's case, it is his cab. A 3-in. antenna, which looks like a small desktop coffee warmer is attached to the trunk of the car and picks up the strongest signals from four satellites. The computer software located in the trunk of the car analyzes the signals to determine the location of the cab by providing x, y and z coordinates. Stevens said.

Palmtree is connected to the vehicle's ignition, battery, speedometer and its computer motion sensor, said Oliveira, a private cab driver who operates out of a CD-ROM with all the Alpha Cab Service in San Jose, Calif.

GPS is used often in aviation, said Jerry Linthicum, a consultant in San Luis Obispo, Calif.

But in auto navigation, it is used only in vertical markets, such as business delivery and emergency services.

Japan has a \$1 billion consumer market for GPS, said Phillip Redman, a senior analyst for wireless mobile communications at The Yankee Group in Boston. But in the U.S., users refuse to pay the more than \$3,000 for a device that merely takes you to the right destination. To attract users, GPS applications would have to display more information, and the cost would have to come down.

Linthicum agreed, saying that users with laptops can buy a GPS for about \$70, which includes a receiver, antenna and cord that goes into the mouse port of the laptop. The computer has a CD-ROM with all the streets that are accessible listed by ZIP code, street address and telephone number. The map is displayed on the laptop screen

and is somewhat harder to follow than the Palmstreet's display.

No matter how inexpensive GPS becomes, it can never compete with a paper map. "I'm pretty good with maps," said Bill Frezza, president of Wireless Computing Associates in Yardley, Pa. "A 35-cent paper map goes a long way. If [GPS] is free, I'll take it, but if I have to pay \$3,000, I wouldn't."

But Oliveira said he swears by the technology. He said it has given him more business and a loyal following in the community and among business travelers who stumble into his taxi and fall in love with the device. "I feel so archaic when I have to use a regular map," he said. "This is the best system that's come out since the cellular phone." □

Moham is a freelance writer in Los Altos, Calif.

## Review: Ricochet

CONTINUED FROM PAGE 69

Using the standard Windows (3.1, 95 or NT) or Macintosh TCP/IP stack, all system and application software runs over the wireless network as if running over a standard dial-up telephone line. Although Metromin provides Netscape Communications Corp.'s Navigator 2.0.2 for Web browsing, later versions of Navigator or Microsoft Corp.'s Internet Explorer would work. Using other standard software, we picked up our E-mail from our Post Office Protocol-3 corporate server and accessed The Microsoft Network.

The average throughput for the network ranges from 14.4K to 28.8K bit/sec, comparable to dial-up modems. That also is faster (and less expensive) than cellular, Cellular Digital Packet Data and radio-based networks. Our tests throughout the Seattle service area hovered more around 28.8K bit/sec, throughput than 14.4K bit/sec.

During our ultimate mobile stress test, using Ricochet aboard a Washington State Ferry on Puget Sound — we exposed the limits.

The throughput dropped dramatically when we moved away from the boat's windows. Also, the service doesn't work well (or at all) when moving faster than 10 miles per hour in a car or ferry.

"Mobile" applies only to where you use the service, not your state of motion.

Service as yet is available only in San Francisco, Seattle and Washington. (Maps of the coverage areas are available at [www.ricochet.net](http://www.ricochet.net).) Metromin wires up campus areas upon demand, and the company plans to infiltrate most major cities within five years, with Los Angeles and the Washington/New York/Boston corridor high on the list.

Although the service area is limited, and the service works poorly while moving, Ricochet lets you "cut the wire" to the Internet or corporate network at an acceptable price. □

DeVorey is a freelance writer in Seattle. He can be reached at [cdvorey@connect.com](mailto:cdvorey@connect.com).

Metromin's Ricochet modem



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**THERE WAS,  
IN FACT,  
A REASON  
THEY CALLED IT  
THE PERSONAL  
COMPUTER.**



Oh yeah. There's a person sitting in front of it.

Oftentimes, that person is a very special person called an employee. Someone who walks through your doors in the morning and back out in the evening (sometimes, very late in the evening). Someone who will rewrite paragraphs in the shower. Or not. Someone who will work through lunch to make something just right. Or not. Someone who will care. Or not.

It is people who define business. It is people who will determine whether your company will be just good or damn good or great. We believe that given the responsibility and the right tools, the people who work for you will do extraordinary things. For millions and millions of people, the right tool is the computer.

What makes the computer *personal* is a program called Microsoft® Windows®.

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Windows makes computing more powerful. More than *one hundred thousand* programs have been written for the Windows platform. So you can type words and calculate numbers, create presentations with animation and sound and video, do 3-D CAD design, send a message to the other side of the office, send a message to the other side of the world, manage inventory and payroll, draw, find things on the Internet, create your own intranet, build a database, manage projects, hold live video meetings on screen and check your spelling.

And Windows makes computing travel. You can take your powerful programs, travel 3,000 miles, use them, plug your notebook computer into a phone jack and work as if you were sitting at your desk.

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**Drop the ax - gently**  
Be quick and courteous when  
firing an IT worker, experts  
advise. Page B1

## Managing

# BRAIN HUNT

Need a  
strategy  
consultant to  
help move  
your IT  
organization  
forward?  
There's a lot  
you should find  
out before you  
shake hands  
with you.

By Miryam Williamson

IMAGINE THAT YOU'RE A NEW CHIEF INFORMATION OFFICER who has come to jazz up a staid old insurance company that wants to boogie. What's the first thing you do? You could hire one of the Great Big Management Consultants to come in and strategize.

That's what Joel Conrad, senior vice president and CIO at Liberty Corp. in Greenville, S.C., did. Conrad asked Price Waterhouse LLP to develop a three-year strategy for using information technology to advance the business. "We're doing a lot of neat things here, a complete retooling of a company that's been in business since 1905," Conrad says.

Companies that want to grow, break into new markets or streamline operations can hardly accomplish anything without help from technology, a fact not lost on technologists. In its 10th annual survey of issues seen as critical by information systems management, Computer Sciences Corp. (CSC) in El Segundo, Calif., found that "using IT for competitive breakthroughs" tied for third place with "capitalizing on advances in IT." The two issues moved up from fourth and fifth places, respectively, from last year's survey. "Aligning IS and corporate goals" ranked first for the third straight year. The full survey, to be published in July, can be obtained by calling CSC at (800) 272-0018.



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Liberty's Joel Conrad: We don't try to push to the point where the consultant can't make any profit, but we are looking for a good price.

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**NEC**

CONTINUED FROM PAGE 27

# BRAIN HUNT

Because developing strategies to address those issues often requires expertise beyond the reach of the typical IT shop, technology leaders find it useful to call on strategic consultancies such as McKinsey & Co., Mercer Management Consulting and

the management groups at the Big Six consulting firms.

Another reason to call in the big guns is that IT people often lack acceptance as strategic thinkers in the eyes of senior management. Bernard "Bud" Mathaisel, CIO at Ford Motor Co. in Dearborn, Mich., has served as CIO at four corporations, with posts at big-name consultancies between each. Yet during one of his CIO stints, a top company officer responded to something Mathaisel said with, "Those are really high-level, good conceptual thoughts. I didn't ever expect to hear them from our IT department."

Mathaisel sees value in hiring a strategy consultant to help forge a link with senior management to accomplish politically tricky cross-functional planning for business transformation.

## NAMES AREN'T EVERYTHING

But people often choose a consultancy because it has a familiar name rather than being suitable for the particular project. Conrad, whose previous employer was Ernst & Young LLP, looked at it companies before choosing Price Waterhouse. The decision, he says, was based on "individuals, and not the firm's name." The consulting team's experience and the way its members related to Conrad and the people who hired him were the deciding factors, he says.

One of the worst mistakes an IT manager can make is hiring a consultancy that fails to check references. "It's surprising that even with multimillion-dollar engagements, often nobody asks for references," says Rick Swanborg, a principal at Iccs, Inc., a Boston firm that deals with intellectual capital. Swanborg, another Ernst & Young alumnus, says a manager should insist on references from companies similar in industry focus and size.

"Once you have the references, make sure to get the names of the people who did the actual work, and try to look them in to work on your project," he says.

Conrad suggests exploring with the references the scope of work and asking whether they were satisfied with the findings and recommendations produced. Questions about the outcome of the consultants' advice aren't necessary. "Sometimes you go into a planning project with the outcome in mind, and what comes out is totally different," Conrad says. For example, Liberty once asked McKinsey to develop a strategy for acquiring businesses outside the insurance industry. Instead, the consultants told Liberty to concentrate on integrating the insurance companies it had already acquired. "It wasn't the outcome we were expecting," Conrad says.

## AVOID THE BAIT AND SWITCH

Talk to almost any technical manager about consultants, and you're apt to hear within the first few sentences the term "bait and switch," most often associated with scam artists. "You order consulting, companies get involved in a bait and

## AVOID COMMON PITFALLS

Some advice on hiring a strategic consultant:

- **Take time to understand the current situation:** A successful consulting engagement provides knowledge and skills unavailable within the client organization. Conduct a frank assessment of goals and capabilities before calling in the consultants.

- **Check references:** Ask detailed questions about the scope of work performed, the names of those who did the work and whether their reports were satisfactory and delivered on time.

- **Be clear about expectations:** The contract should specify objectives and work products required. Milestones and measurements are events. Understand that sponsoring and managing such consulting engagements means tolerating an unaccustomed level of ambiguity.

- **Get the people you want to do the job:** If specific consultants are important to you, write their names in the contract and be ready for work to begin on the agreed-upon date.

- **Prepare for contingencies:** Both parties should understand clearly how problems will be resolved, what happens if targets aren't met and who owns the intellectual property that comes out of the project.



**Check out advice on how 15 consultants can ease the pain of constant travel. See IT Careers**

switch," Conrad says. "They'll have some really good people in front of you at first, but when the work begins, the project team is completely different."

Richard Kravchuk, former director of



**Snap-on Tools' Lawrence Panatera: Break a consultant's project into chunks of a few months each, setting specific milestones that measure progress. That will let you know early if a project is in trouble.**

manufacturing systems at The Dannon Co. and now senior manager at Ernst & Young in New York, offers another point of view. "What you're buying from a consulting firm is not just the team that will work with you, but also all the knowledge the consulting firm has to offer. You're hiring a cadre of people behind the ones you see."

Conrad responds, "It's true there is a corporate base of information in the big companies that consultants can draw from, but it still boils down to having the right individuals." He says the manager should write into the contract the names of those he expects to do the work.

Erch Almsay, a vice president at Mercer Management Consulting in New York, says IT managers can minimize the risk of becoming a bait-and-switch victim by ensuring that projects begin on time. "Companies don't realize that consultants are dealing with the most precious resource of all: time," Almsay says. "We may promise one person, but if the project is delayed two weeks, that person will have been moved to another project." It may look like bait and switch, but the purpose is to maximize revenue by assigning consultants effectively, he says.

## IS THAT CLEAR?

A client organization's failure to clarify what it expects from consultants is a common mistake. Lawrence Panatera, CIO at Snap-on Tools Corp. in Kenosha, Wis., recommends breaking the project into chunks of a few months each, setting specific milestones that measure progress. That way, IT clients can get an early warning if the project is in trouble by defining the objectives due at each milestone. Kravchuk says, both parties

would avoid the dreaded "scope creep," where pressure mounts for more work than was originally contracted. But both sides agree that contracts should allow leeway for additional work at added pay.

Conrad says many IT leaders are in thinking the consultant's fee is a take-it-or-leave-it proposition. "The price that's stated is a starting point for negotiation," he says. "We don't try to push to the point where the consultant can't make any profit, but we are looking for a good price. If they do a good job, there's always the possibility of more work." Conrad pegs consulting firms' profit margins at 70% to 100%, which leaves considerable room for negotiation.

Cultural differences can also cause friction between IT and management. "Technical or professional arrogance" exists in both camps, Almsay says. "Both believe they have the answers in their respective fields and don't trust other people to help them."

It takes a strong sponsoring manager to make a consulting engagement work in those circumstances. "The true value in management consulting comes from the way people change their attitudes, their skills and the way they interact with one another. You need a sponsor who can make that happen throughout the organization," Kravchuk says.

And Conrad offers this observation: "With development projects, we manage the work plan and the development methodology. When you are doing strategic projects, it's more a matter of managing the relationship than managing the work." □

Williamson (williamson@reporters.net) is a technical journalist in Warwick, Mass.

When it's time to drop the ax on an IS worker, experts say to be quick and courteous — and reduce the risk of a revenge attack on the company's computer system

# WHEN KNOWLEDGE IS DANGEROUS

# W

BY STEVE  
ALEXANDER

NEW JOHN DOE IS FIRED — whether because he was downsized, incompetent or suspected of sabotage — he can expect a sympathetic smile and an abrupt escort to the front door.

Corporations, fearing revenge from technically skilled information technology employees, are usually unwilling to risk what John might do to the corporate computer system if he were allowed in the building even a few minutes after being fired.

More than one in five inside hacks cost companies between \$50,000 and \$200,000, according to a survey of 205 Fortune 1,000 companies by Baltimore security firm WarRoom Research. And although there is disagreement over whether insiders or outsiders are more likely to hack in to a company's computers, human resources and security managers say fired IS workers are dangerous simply because of their knowledge.

"Our human resources department believes that IS is more of a risk for tampering than our end users not involved in data centers," says Michael Stewart, manager of technical services at Fallon Healthcare System, a hospital chain and health maintenance organization in Worcester, Mass.

Most IS managers and security consultants recommend escorting potentially troublesome IS employees out the door as soon as they're terminated. As long as fired employees are paid what they're owed — say, two weeks of severance pay — no laws or regulations prevent

## TIPS FOR IS MANAGERS ON FIRING IS EMPLOYEES

• After you terminate the employee, escort him out of the building immediately

• Before you discuss the termination, cut off the employee's computer access

• Match the user identification codes in your system with the roster of current employees to ensure the fired employee can't gain access via a false user ID

• If the fired employee must be in the building to obtain personal belongings, he should be supervised and denied access to the computer system

• Tell security the fired person no longer has access to the building

companies from getting employees out of their facilities immediately.

But employees should escort fired IS employees in a polite manner and avoid making a scene, says Victor Schachter, an attorney at law firm Schachter, Kristoff, Orenstein & Berkowitz in San Francisco who specializes in employment law on behalf of corporations. Courtesy is the key, he says, because if a fired employee is humiliated by treatment that "violates fundamental concepts of civilized behavior," the company may be leaving itself open to a lawsuit for "intentional infliction of emotional distress."

Even IS people who leave voluntarily may need to be treated as if they had been fired, one IT security manager says.

"People are very often bitter when they leave, even if they leave of their own accord," says Jim

Boyle, a security technology specialist at Chevron Information Technology Co., the IT branch of Chevron Corp., in San Ramon, Calif. "There is no reason to suppose someone leaving voluntarily may not want to come back and compromise your computer system or walk away with a proprietary piece of information."

## NO EXCEPTIONS

Nor are executives necessarily exempt. At Fallon, "all people who are fired are escorted out," Stewart says.

But William Hugh Murray, executive consultant of IS security at Deloitte & Touche in Wilton, Conn., disagrees about firing senior managers. "When IBM discharges a director or a vice president, they don't worry about escorting that person off the premises," he says. "Those people have got reputations to protect."

Even before a manager tells an IS employee that he's fired, the employee's computer access should be cut off. IS managers and consultants say.

"If you let people stay, have someone stay with them while they clean out their desks — and while they are doing that, change all the passwords in their accounts," says Tom Pelier, who in April left his job as supervisor of information protection at Detroit Edison, Inc. If the fired person has personal information in the computer system, have someone else get it out.

While escorting people out seems likely to trigger bitterness, some security managers say that can be prevented by being exceptionally pleasant.

"You have a job to do, to protect the assets of the corporation. But you also can be a human being in the process," Pelier says. "Always be nice to people, even when you have to walk them to the door. I've walked employees who still come to Christmas parties and call for references." □

Alexander is a freelance writer in Edina, Minn.

## COMPUTERWORLD

Have you seen IS managers use some good or bad methods to fire someone?

Send examples to: [rick\\_salis@cw.com](mailto:rick_salis@cw.com). We'll post the best responses (some of which will be edited to protect identities) on our Web site ([www.computerworld.com](http://www.computerworld.com)). Include name and telephone number for verification.



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# W

## FOUND THE LEAST UGLY BABY

ROBERT L. SCHEIER



has an IBM executive scoffs at his own IS organization as "geeks," it's sign things are changing.

The good news is that a lot of companies, like IBM, finally are using information technology right.

When IT cuts costs and cycle time for a company, the increase in productivity helps extend the nation's current run of high employment and low inflation. Some pundits claim that IT helps soften the boom-and-bust cycles that have long plagued the global economy.

The bad news is that the best projects aren't being done by traditional IS organizations or traditional IS people. They're being done by people who've seen how we've misused IT for decades and who now believe that settling for good-enough technology — what the IBM executive called "the least ugly baby" — often produces more benefit.

Much of that breakthrough thinking is common sense, which makes it more incredible that so many in IS haven't thought of it before. Among the common themes are the following:

**31 Avoid systems:** When former Cobol programmer Vern Mueller was told to cut manufacturing time and inventory levels at a General Electric locomotive plant in Erie, Pa., he didn't start looking for software to install. Instead, using a technique called Demand Flow Technology, he and his staff immediately tracked every step it takes to build a diesel locomotive and isolated the bottlenecks.

Through simple steps such as adding cranes and rearranging shelving, his team reorganized and simplified the chaotic workflow. They often used low-tech visual cues, such as different color rollers

at the end of a conveyor belt, rather than computer screens to tell employees when to reorder parts.

At a cost of \$1.5 million, the team cut manufacturing time from 25 as much as 85 hours to 24 hours per locomotive and slashed \$11 million from inventory costs.

IT helped by getting out of the way. Mueller told a recent manufacturing conference sponsored by Boston consultancy Advanced Manufacturing Research (AMR) that his team actually turned off the shop floor control module of a manufacturing resource planning system because it wasn't needed in the new streamlined workflow.

**32 Kill systems:** Not every system, but all the redundant, incompatible applications built by business units over the years. IBM had 6,000 "strategic" applications when CEO Lou Gerstner took charge in 1993. Bjorn Andersen, director of Group 1 Project Management, told the AMR conference that by eliminating 5,700 of those applications, IBM has cut its annual IS bill by 47%. Those savings have helped boost IBM's earnings and its stock price.

IBM is replacing many of those scrapped applications with SAP's R/3 enterprise resource planning system. One advantage of standardizing on R/3 is that it forces every plant that uses it to adopt common business processes. Because every plant now does things the same way, IBM is better able to shift produc-

tion to lower-cost plants as needed.

Another company trying to streamline production is Boeing's Commercial Airplane Group. A Boeing IS manager, speaking at the AMR conference, said the company is cutting back the number of production systems that trade information from 200, most of which were developed in-house, to four off-the-shelf packages.

**33 Don't let the toolies drive:** Several recent studies show that IS organizations are losing control of IT spending to business units. Real-world experience bears that out and shows why it's happening.

At IBM, the only way to pare unneeded systems was to take critical systems decisions away from IT and give that power to 11 "re-engineering leaders" who report directly to Gerstner, Andersen said.

The same applies to corporate data models and data elements, which define how databases are organized as well as terms such as "customer" or "payment." The "IT geeks," Andersen said, would "create a data model we're all supposed to worship" but that would deliver little business value. Such top-down data modeling efforts often bog down in cost overruns and political infighting.

At IBM, Boeing and TransCanada Pipelines, IS managers instead are creating data models and data elements to solve specific problems while, they hope, laying the foundation for future enterprise-wide data sharing. That approach isn't perfect, acknowledges one TransCanada project leader, but "if you don't start, you won't get there." Which leads to:

**4) Get going:** The most effective companies and IS leaders are focusing on speed, practicality and discipline. As Andersen said, "The emphasis within IBM these days is on execution, execution, execution — remembering there's two interpretations of that word."

That message of fear and hope is what IS leaders are sending to their staffs and to the business managers they serve. □

Scheier is Computerworld's senior editor; management.

## SOURCES IS MANAGER'S BOOKSHELF

### Managing Ecology: Managing Information and Knowledge Environment

By Thomas H. Davenport  
with Laurence Prusak  
Oxford University Press, New York; 228 pages, \$29.95 (hardcover)

**T**om Davenport's *Information Ecology* is one of the two or three most important information technology books to be published this year — and perhaps for many years to come. It's a must-read for information systems executives, archi-

tects, planners, developers and project leaders. And if you're an IS educator, you haven't done your job without leading your class in a rip-roaring debate about this book.

Business users know IT alone won't make us better informed. Still, IS seems stuck in a holdover pattern: We overwhelm users with information, don't understand users well enough and drain the life out of our projects by endless planning and defining.

Davenport points the way out: Stop thinking like information engineers and central planners and start paying atten-

tion to how people really live with information.

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Lacking the poetics of thick prose that marred Davenport's earlier *Process Innovation*, this book is consistently a pleasure to read.

The book doesn't answer all the questions Davenport has raised, but there are enough answers and ideas to put reading *Ecology* at the top of your to-do list. — Allen E. Alter

## Buyer's Guide

**PRODUCT REVIEW:** A review of nine handheld computers shows they're improving and could be a viable laptop substitute for some professionals.

By Ted  
Vegvari,  
PC Lab

# HANDHELDS HIGH

**h**andheld computers — helpless when not seated at their desktop PCs and for whom laptops aren't an option because of size or price — can find new levels of capabilities, mobility and control with the current wave of handheld PCs. Today's handhelds include those that run proprietary operating systems and those with Microsoft Corp.'s Windows CE. They feature virtually no learning curve and integrate well with corporate messaging products.

Many users may find that handhelds can substitute for a laptop at one-quarter or less the cost.

Our tests demonstrated that for basic functions such as managing and adding contacts, scheduling meetings and writing memos, eight out of 10 test subjects with Windows 95 experience could pick up a Windows CE-compatible handheld and be comfortable using the product within 5 minutes. It took up to six times longer with non-Windows CE handhelds.

That doesn't guarantee that Windows CE is a better interface, just that the Windows interface is more common, and therefore more people know how to

guess their way through the required process.

PC Lab tested nine handheld computers that we believe represent a cross-section of the industry. We gave letter grades (A - excellent, B - good, C - average, D - poor and F - very poor).

We considered the following functions as most important to users: retrieving electronic mail consistently; managing a schedule on a handheld; synchronizing data with a desktop PC running Windows; maintaining an increasingly sophisticated contact database; performance and speed; and overall ease of use.

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### OUR REVIEWER RANKS THE PRODUCTS

- 1 HP 320LX
- 2 Compaq PC Companion C140
- 3 Casio Cassiopeia A11
- 4 NEC MobilePro 450
- 5 Hitachi HPW10E4MB
- 6 U.S. Robotics PalmPilot Pro
- 7 Sharp Zaurus ZR-3500X
- 8 Psion Series 3C
- 9 Newton Message Pad



# FIND THE LEAST UGLY BABY

ROBERT L. SCHEIER



hen an IBM executive scoffs at his own IS organization as "geeks," it's a sign things are changing.

The good news is that a lot of companies, like IBM, finally are using information technology right.

When IT cuts costs and cycle time for a company, the increase in productivity helps extend the nation's current run of high employment and low inflation. Some pundits claim that IT helps soften the boom-and-bust cycles that have lunged through the global economy.

The bad news is that the best projects aren't being done by traditional IS organizations or traditional IS people. They're being done by people who've seen how we've misused IT for decades and who now believe that settling for good-enough technology — what the IBM executive called "the least ugly baby" — often produces more benefit.

Much of that breakthrough thinking is common sense, which makes it more incredible that so many in IS haven't thought of it before. Among the common themes are the following:

**To Avoid systems:** When former Colgate programmer Vern Mueller was told to cut manufacturing time and inventory levels at a General Electric locomotive plant in Erie, Pa., he didn't start looking for software to install. Instead, using a technique called Demand Flow Technology he and his staff laboriously tracked every step it takes to build a diesel locomotive and isolated the bottlenecks. Through simple steps such as adding cranes and rearranging shelving, his team reorganized and simplified the chaotic workflow. They often used low-tech visual cues, such as different color rollers

at the end of a conveyor belt, rather than computer screens to tell employees when to reorder parts.

At a cost of \$5.5 million, the team cut manufacturing time from as much as 85 hours to 24 hours per locomotive and slashed \$11 million from inventory costs.

IT helped by getting out of the way. Mueller told a recent manufacturing conference sponsored by Boston consultancy Advanced Manufacturing Research (AMR) that his team actually turned off the shop floor control module of a manufacturing resource planning system because it wasn't needed in the new streamlined workflow.

**To Kill systems:** Not every system, but all the redundant, incompatible applications built by business units over the years. IBM had 6,000 "strategic" applications when CEO Lou Gerstner took charge in 1993. Bjorn Andersen, director of Group 1 Project Management, told the AMR conference that by eliminating 3,700 of those applications, IBM has cut its annual IS bill by 47%. Those savings have helped boost IBM's earnings and its stock price.

IBM is replacing many of those scrapped applications with SAP's R/3 enterprise resource planning system. One advantage of standardizing on R/3 is that it forces every plant that uses it to adopt common business processes. Because every plant now does things the same way, IBM is better able to shift produc-

tion to lower-cost plants as needed.

Another company trying to streamline production is Boeing's Commercial Airplane Group. A Boeing IS manager, speaking at the AMR conference, said the company is cutting back the number of production systems that trade information from 400, most of which were developed in-house, to four off-the-shelf packages.

**Don't let the tactics drive:** Several recent studies show that IS organizations are losing control of IT spending to business units. Real-world experience bears that out and shows why it's happening.

At IBM, the only way to pure unintended systems was to take critical systems decisions a way from IT and give that power to 11 "re-engineering leaders" who report directly to Gerstner, Andersen said.

The same applies to corporate data models and data elements, which define how databases are organized as well as terms such as "customer" or "payment." The "IT geeks," Andersen said, would "create a data model we're all supposed to worship" but that would deliver little business value. Such top-down data modeling efforts often bog down in cost overruns and political infighting.

At IBM, Boeing and TransCanada Pipelines, IS managers instead are "creating data models and data elements to solve specific problems while they hope, laying the foundation for future enterprise-wide data sharing. That approach isn't perfect, acknowledges one TransCanada project leader, but "if you don't start, you won't get there." Which leads to:

**Get going:** The most effective companies and IS leaders are focusing on speed, practicality and discipline. As Andersen said, "The emphasis within IBM these days is on execution, execution, execution — remembering there's two interpretations of that word."

That message of fast and hope is what IS leaders are sending to their staffs and to the business managers they serve. □

Scheier is Computerworld's senior editor, management.

## SOURCES IS MANAGER'S BOOKSHELF

### Information Ecology: Managing the Information and Knowledge Environment

By Thomas H. Davenport  
with Lawrence Prusak

Oxford University Press, New York: 208 pages, \$59.95 (hardcover)

Tom Davenport's *Information Ecology* is one of the two or three most important information technology books to be published this year — and perhaps for many years to come. It's a must-read for information systems executives, archi-

tecs, planners, developers, and project leaders. And if you're an IS educator, you haven't done your job without leading your class in a rip-roaring debate about this book.

Business users know. IT alone won't make us better informed. Still, IS seems stuck in a holding pattern. We overwhelm users with information, don't understand users well enough and drain the life out of our projects by endless planning and defining.

Davenport points the way out: Stop thinking like information engineers and central planners and start paying atten-

tion to how people really behave with information.

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gy, corporate politics, behavior and culture, staffing, management and architecture, all get an examination through this fresh perspective.

Lacking the patches of thick prose that marred Davenport's earlier *Process Innovation*, this book is consistently a pleasure

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The book doesn't answer all the questions Davenport has raised, but there are enough answers and ideas to put reading *Information Ecology* at the top of your to-do list. — Allan E. Auer

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- 7 Sharp Zaurus ZR-3500X
- 8 Psion Series 3C
- 9 Newton Message Pad



PRODUCT	HP 320LX Hewlett-Packard Co. Palo Alto, Calif. www.hp.com	PC Companion C140 Compaq Computer Corp. Houston www.compaq.com	Cassiopeia A11 Casio Computer Co. Dover, N.J. www.casio.com	MobilePro 450 Packard Bell NEC, Inc. Roshar, Mass. www.NEC.com
PRICE	\$799.99 (street)	\$469 (street)	\$499 (street)	\$499 (street)
OPERATING SYSTEM	Windows CE	Windows CE	Windows CE	Windows CE
PEN	Yes	Yes	Yes	Yes
KEYBOARD	Yes	Yes	Yes	Yes
MEMORY	4M to 40M*	4M to 40M*	4M to 8M	4M to 8M
MODEM	33.6K bit/sec. (optional)	14.4K bit/sec. (optional)	28.8K bit/sec. (optional)	28.8K bit/sec. (optional)
WIRELESS MODEM	Optional	Optional	Optional	Optional

## HP 320LX

Leave it to Hewlett-Packard to divine a way to make its keyboard look larger and be easier to use than its competitors.

The screen (640 by 240 dot/in.) is much larger than the other handheld PCs we tested, without the case being noticeably larger. This latest HP 320LX comes from a long line of DOS-style PC handhelds, which have evolved into high-quality Windows CE-compatible devices. Performance is robust, and the interface to connect to internal/external modems and desktop PCs is excellent. Surprisingly, the docking cradle is substantial, and we were concerned that it would break during separation.

The backlit display was easy to read under most test conditions, including while driving in the morning and afternoon.

An important feature that sets the HP 320LX apart from the other devices tested is having separate C-Flash and PC Card slots, so users can upgrade modems. And a small slot under the keyboard is for a read-only memory upgrade. When a new version of CE comes out, users can obtain the chip and just plug it in, providing long-term investment protection.

**PROS:** It has good upgradability, investment protection and speed. It has the best physical design and largest screen and keyboard of machines tested. It comes closest to feeling like a desktop PC running Windows 95.

**CONS:** The docking cradle design makes it difficult to disconnect or remove the HP 320LX.



## Compaq PC Companion C140

Most users who open the package containing the Compaq PC Companion will feel they are getting their money's worth. The PC Companion feels solid; the cover hinges are heavy-duty, and the assembly is tight. The unit is roadworthy, and we weren't afraid to take it places. The pen is accessible but easily lost.

The keys are performance and firm, and the tops are indented to reduce typing errors. Frequently used keys were easy to find under varied lighting conditions. The position of the contrast control on the left side of the screen is prone to accidental bumping when the PC Companion is moved or stored in a pocket. We had to reset the contrast, which was annoying. Although the unit ships with a comfortable stylus, tapping the screen with a fingertip consistently works well. The screen's sensitivity to touch and double-clicking is exceptionally well-balanced.

**PROS:** It has solid construction and is easy to handle. It survived a 4-foot drop onto a carpeted office floor.

**CONS:** The screen is small and difficult to read, and we experienced eye fatigue after a half hour of use even under optimal settings. The screen reflected ambient and direct light sources at the viewer from most positions.

**MUST-HAVE ADD-ONS:** We highly recommend purchasing the optional cradle and charger.



## Casio Cassiopeia A11

One innovative feature on the Cassiopeia A11, which also is included on the Compaq PC Companion, is a flashing alarm light that alerts you when it's time for an appointment. A notification button turns off the alarm. The Casio machine is a dead ringer for the Compaq, right down to the separate "on" and "off" switches. The keyboard is excellent, with contoured keys suited for small hands. The unit is easy to open and feels slightly smaller and lighter than the HP 320LX.

Also like the Compaq, there is a connector for digital camera use (requiring an optional cable). Data exchange with a Casio QV Digital Camera requires separate software (we didn't test this feature).

**PROS:** Screen sensitivity to the stylus pen is excellent. The screen supports backlighting, and lettering is crisp with good contrast.

**CONS:** It has a small screen. Contrast adjustment is on the exterior and, like Compaq's, requires frequent readjustment. Buy extra pens — the front exterior storage location makes it easy to lose them.

**ADVICE:** If you need to keep track of information and appointments while you're away from your desktop, this is a good choice, especially with the optional wireless modems available. Buy extra memory, and you'll be able to store large contact databases with acceptable performance.



### GRADES

E-mail  
Scheduling  
Synchronizing data  
Maintaining contacts  
Performance  
Ease of use

A-  
B+  
A-  
A  
A  
A

### GRADES

E-mail  
Scheduling  
Synchronizing data  
Maintaining contacts  
Performance  
Ease of use

B  
B+  
B+  
B+  
A  
A-

### GRADES

E-mail  
Scheduling  
Synchronizing data  
Maintaining contacts  
Performance  
Ease of use

B  
B+  
B+  
B+  
A  
A-

**HPW10E4MB**  
Hitachi America Ltd.  
Newtown, Ca  
www.hitachi.com

**PalmPilot Pro**  
U.S. Robotics  
Shakopee, Ill  
www.usr.com/palm

**Zaurus ZR-3500X**  
Sharp Electronics Corp.  
Mahwah, N.J.  
www.sharp.usa.com

**Series 3C**  
Psion PLC  
Concord, Mass.  
www.psion.com

**Newton Message Pad 2000**  
Apple Computer, Inc.  
Cupertino, Calif  
www.newton.apple.com

\$599 (list)	\$399.99 (street)	\$399.99 (street)	\$449 (street)	\$549 (street)
Windows CE	PalmPilot OS	Proprietary	Proprietary	Newton OS
Yes	Yes	Yes	Yes	Yes
Yes	No	Yes	Yes	Optional
4M to 40M*	9K to 1M	2M	2M to 8M*	5M to 32M*
28.8K bit/sec. (standard)	28.8K bit/sec. (optional)	14.4K bit/sec. (standard)	28.8K bit/sec. (optional)	28.8K bit/sec. (optional)
Optional	No	No	No	Optional

\*PC Card

## Packard Bell NEC MobilePro 450



The MobilePro 450 is identical in size and weight to the Compaq PC Companion. The case is solid and attractive. Unfortunately, the docking cradle fits loosely, and the port adapter separates from the cradle. Keyboard layout is comfortable, but the keys are flat on top, which caused the pen to slide off when we tried to use it to enter data. Also, keys are wobbly when pressed by fingers. The opening latch is located on the front left, and the unit opens easily. The backlit display, although very reflective, was bright and easy to read under most lighting conditions.

**PROS:** Our test subjects agreed that this is a high-quality product. It exceeded our computing performance expectations. It features solid construction and is easy to handle. It survived a 4-foot drop onto a carpeted floor.

**CONS:** The docking cradle fits loosely, and the port adapter separates from the cradle. Flat keys cause the pen to slide.

**ADVICE:** This is a very good choice for Windows users who need to carry their contact and scheduling data with them. The trade-offs are negligible. We highly recommend purchasing the optional cradle and charger.

## Hitachi HPW-10E4MB

Hitachi has taken some of the best features of other handhelds — such as internal modem, key click, internal pen compartment and bright, monochrome screen — and neatly incorporated them into the HPW10E4MB. All it needs now is a smooth name. Lighter than the HP 320LX, the HPW10E4MB runs an average of 0.2 seconds slower than the Compaq and HP, but it comes with a built-in 28.8K bit/sec. fax modem and a headset connector, which we liked.

The screen was very readable in most settings, but its sensitivity to the stylus was lower than that of the others tested, which caused minor frustration. Battery covers were somewhat difficult to remove on most handheld PCs tested, but they were easiest to remove on this unit.

**PROS:** It has high-quality design, easy access to main batteries and built-in fax/modem and headset connectors that free up slots for other add-ons. The replacement stylus is inexpensive.

**CONS:** There's no backlighting, so it was difficult to read in dark areas. The screen isn't sensitive enough to the pen tap.

**ADVICE:** This is an excellent choice for the experienced user who travels, doesn't like to plug in modems or worry about losing modem cards, and needs to send and receive faxes.

**MUST-HAVE ADD-ONS:** The optional headset for this device allows automated dialing using contact management, and after the connection is made, the headset acts as a telephone.



## U.S. Robotics PalmPilot Pro



The PalmPilot is a radical change in form-factor compared with the other units we tested. It doesn't have a keyboard, and it looks more like a giant pager. The screen was easy to read and didn't require adjustment. The most valuable component available with this product is HotSync, which allows simple connection and synchronization of data with a desktop PC from either the docking cradle or modem. E-mail can also be synced.

Without a keyboard, the PalmPilot accepts pen input, but we found the recognition capabilities very limited and opted for the screen-display keyboard for data entry. Writing an E-mail message wasn't practical, but receiving and reading short E-mail messages was.

**PROS:** It has excellent remote syncing capabilities and is small and easy to carry.

**CONS:** It doesn't have Windows CE software, and it's very difficult to enter data without a keyboard.

**ADVICE:** This product is ideal for the user who needs only to carry appointment and contact information, but doesn't have to enter new data such as contacts or keep notes. Based on price alone, this may be the best value of all the units tested, especially if you need to standardize your team on a single product and expense is the deciding factor.

**MUST-HAVE ADD-ONS:** It needs a modem. Symantec Corp.'s Act or Goldmine Software Corp.'s Goldmine contact management software and Maximize Technologies, Inc.'s PilotLink.

### GRADES

E-mail	B
Scheduling	B
Synchronizing data	B
Maintaining contacts	B
Performance	A-
Ease of use	A-

### GRADES

E-mail	B+
Scheduling	B
Synchronizing data	B
Maintaining contacts	B
Performance	B+
Ease of use	B+

### GRADES

E-mail	B
Scheduling	C
Synchronizing data	A
Maintaining contacts	D
Performance	B
Ease of use	B+

## Nokia 9000 Communicator

**J**ust to make life interesting, we decided to test one smart phone as a wild card in the bunch of handhelds. We were curious about whether this category of personal devices is catching up to the handheld market. To dispel the suspense: No, it's not fair at this stage to make a head-to-head comparison. Following is a quick look at what we noticed in testing the Nokia 9000 Communicator.

We received a "functional dummy" of the Nokia 9000 Communicator (the communication features don't work yet) currently in use in Europe.

The Communicator is among the first products to promise integration of cellular phone, pager, E-mail, fax, computer and so on. It's \$2,000 price tag will limit its marketability to the masses, which makes it an executive communication device. Even though it is a cellular phone, we found the unit too large to put in a shirt or suit pocket.



**PROS:** Having one device for voice, telecommunications and contact and scheduling programs reduces the number of devices necessary to conduct business on the road. And it offers advanced integrated wireless data communications services.

**CONS:** After you find the number of the person you want to call, it's inconvenient to look up information or type in that appointment while holding this device to your ear. Most of our test subjects said they frequently have their handheld computer in front of them while talking business on a phone. Users can't run native Windows CE applications on the Communicator. Therefore, data will have to be "converted" to other formats, as with the Psion.

—Ted Vagstad

## Sharp Zaurus ZR-3500X



Like a toaster, the Zaurus ZR-3500X efficiently carries out its mission.

Utilitarian in design, it offers vertical columns of touch-sensitive menus to the left and right of the crisp LCD screen, and its performance is among the best of the units tested.

Because this isn't a Windows CE-compatible handheld, users won't find much resemblance to a desktop computer — Windows or Macintosh. The difference isn't a bad thing in this case. Compared with the HP 320LX, the Zaurus 3500 looks more like a large calculator. What makes this product unique and successful is that it provided an excellent solution before Windows CE products became available.

**PROS:** It's intuitive, works fast and does the job. It doesn't require computer experience to learn to use. Batteries seem to last forever.

**CONS:** The screen and keyboard are smaller than we would like. Zaurus data synchronization, although well thought out, isn't as intuitive as Windows CE products.

**ADVICE:** If you're a traveler, you'll enjoy worldwide support for this product. It's proved itself and has a large and loyal user base. Odds are it will do exactly what you want and won't let you down.

**MUST-HAVE ADD-ONS:** It needs Zemail, CompuServe Companion Application Partner and Remote Link, all made by Sharp.

### GRADES

**E-mail**  
**Scheduling**  
**Synchronizing data**  
**Maintaining contacts**  
**Performance**  
**Ease of use**

A  
B  
C+  
A  
B+  
B+

## Pision Series 3C



E-mail, graphical World Wide Web browser for quick collection of information from Web sites only and more applications than we can list. That's the Psion, a high-quality non-Windows CE device that looks like a smaller brother of the HP 320LX. The keyboard is unusual and takes some getting used to. While the screen is among the smallest of the products we reviewed, it has the lowest glare, and we rated readability as best or second best.

Psion doesn't support internal or credit-card modems. Instead, there is an optional Travel Modem which is self-powered by two AA batteries.

**PROS:** It's excellent on its own. Users with no PC experience will find the Psion intuitive and fast. Programs start and run very quickly. Batteries seemingly last forever when you aren't using the modem or serial connection.

**CONS:** Its keyboard has, in essence, two "shift" keys and is significantly different than a PC keyboard, which makes it hard to feel "at home" soon.

**ADVICE:** This product, like the Zaurus, has a history of meeting or exceeding users' needs. If you travel in Europe and need to send and receive E-mail, this product will be easy to use and well-supported — help is available worldwide. But we don't recommend this handheld to users who need to synchronize data with a desktop PC.

**MUST-HAVE ADD-ONS:** It needs a modem, Act for Psion and PsMail.

### GRADES

**E-mail**  
**Scheduling**  
**Synchronizing data**  
**Maintaining contacts**  
**Performance**  
**Ease of use**

B+  
B+  
D-  
A  
B+  
B

## Newton Message Pad 2000



This is the largest and heaviest unit we tested. It's totally different from all the others.

It scores Apple personality, and the Digital Equipment Corp. 16.6-MHz StrongARM RISC processor kept up with our pen input, accurately reading all of our test subject's print. But getting used to the interface was difficult for a Windows user. With the push of a button, the large screen display rotates from portrait to landscape orientation, an exceptionally useful feature for reading documents and inputting data into wide forms. This handheld unit's screen was the largest and easiest to read of all those we tested.

Although listed as weighing 1.4 pounds, it seemed much heavier after we held it for a few minutes. The excellent screen comes at a price — it requires twice as many AA batteries (four) as the other handhelds tested.

**PROS:** Its handwriting capabilities and screen are excellent, and the processor is fast.

**CONS:** It's difficult to integrate into a Microsoft-based environment and is too heavy for most users.

**ADVICE:** This is, in our opinion, the best product for anyone who wants to input data using only a pen, prefers the Macintosh interface and wants to perform in-the-field data collection using custom applications.

**MUST-HAVE ADD-ONS:** For fast and convenient data entry by typing, you need the optional keyboard.

### GRADES

**E-mail**  
**Scheduling**  
**Synchronizing data**  
**Maintaining contacts**  
**Performance**  
**Ease of use**

B-  
C  
D+  
B  
A+  
A-

# My impression on...

## ...the PalmPilot

**T**he PalmPilot is small — it fits in a shirt pocket — and priced reasonably, too, at \$399 for the high-end PalmPilot Professional. You can keep track of appointments and the names, addresses and telephone numbers of all your business contacts. Now I carry all my thousands of phone numbers wherever I go.

You can send and read short E-mail messages, too, if you happen to use a short list of E-mail programs that includes Lotus Development Corp.'s CC-Mail and Microsoft's Exchange and Outlook. Or you can send and receive E-mail over a tiny external modem.

Desktop synchronization is easy. You connect to a PC using a cradle with a cable that connects to the serial port.

You enter information on the PalmPilot either by entering it on a PC and then synchronizing — a preferred method — or through handwriting-recognition software built in to the PalmPilot. Some people get quite proficient with the latter, but I've always had problems with it. My recognition rate is about 90% to 95% — lower when I'm rushed or tired, which is a lot of errors.

The PalmPilot has its problems. In addition to its spotty handwriting recognition, the thing eats AAA batteries like Rosie O'Donnell eats HotTos. My unit is five months old, and it's already showing signs of wear — the battery cover popped off once, and the paint on some of the buttons rubbed off — which causes me to have some severe structural problems down the road. — **Mich Wagner**, senior editor, electronic commerce, Internet

## ...the Cassiopeia A11

**I** really wanted to like the Cassiopeia. I first saw it at Comdex last fall, and the idea seemed neat: a package small enough for travel and with Windows (sort of) too. But after I worked with it periodically for a few days, Cassiopeia suffered the same fate as other handhelds I've typed with. It got a thumbs-down. I gave for a living — writing and editing articles and doing a lot of

"I'll gladly accept another couple square inches of foot print (handprint?) in exchange for the ability to type on the darn thing."

E-mail. Cassiopeia was just another handheld with too small a keyboard, even for someone with average-sized hands. Using a stylus to type is too slow, and I have no plans to learn the shorthand required for some pen systems.

Yet, there's hope. I like the concept of basic Windows capabilities and the core elements of Windows-based applications for remote use, and I have faith that the industry will add Windows CE support for more mail systems. I'll gladly accept another couple square inches of footprint (handprint?) in exchange for the ability to type on the darn thing. — **James Connolly**, technology evangelism editor

## ...the HP 320LX

**T**he \$699 HP 320LX is probably the best of the second wave of Windows CE palmtops. Given the limits in current technology, the 320LX only makes the best of a poor situation.

On the plus side, I connected to our Windows NT desktop and network with Symatec's PCAnywhere and a U.S. Robotics PC Card modem. A U.S. Robotics Megahertz AllPoints card and GoAmerica Communications Corp.'s wireless Internet service gave me satisfactory remote E-mail and Web access. The provided Windows CE software synchronized my desktop's Microsoft Schedule+ and Outlook files with the palmtop. Puma Technology, Inc.'s IntelliSync shuttled data between several other contact managers and the palmtop.

Unfortunately, the poor display inflicted eyestrain under extended use, and the unit had contact problems when remotely running multicolored Windows applications. Even Microsoft's Pocket Street Map proved too difficult to read on the small screen. Although normal typing is laborious, single-hand typing (from holding the unit in the other hand) is exceptionally clumsy.

The HP 320LX only makes sense in a few cases, such as for users who absolutely need the smallest possible unit for mobile E-mail or remote-control computing. Otherwise, the 320LX with Windows CE is like freshly bottled wine: Leave it on the shelf for a year or two and check back later. The technology may be ready by then. — **Chris DeVaney**, freelance reviewer

## Who's using them for what?

Managers are the dominant group of handheld computer users, according to a survey of 224 IS organizations on handheld usage. The telephone survey was conducted by Computerworld's Information Management Group. Trailing far behind managers are sales representatives, teachers/professors and engineers.

### Here are some survey highlights:

- 1 Industries that report the highest handheld computer usage: education, government, health care and manufacturing.
- 2 The hottest vendors, according to this survey: Apple, HP and U.S. Robotics. Altogether, 33 vendors were mentioned.

## SOFTWARE ARE THESE LITTLE GADGETS USING?

Here are the top 10 applications:

1. Scheduling/calendar
2. Sales management
3. E-mail
4. Word processing
5. Spreadsheets
6. Address books
7. Notes/note taking
8. Inventory
9. Database/database access
10. Web browser

1 Handheld highs and lows: Users say they're very happy with performance and desktop synchronization/compatibility of handhelds.

They are less tickled with availability of software and applications and wireless WAN/LAN access.

2 CE or not CE? Considering the release of Windows CE, we asked users to rate the importance of using a Windows-based operating system. Here's the breakdown.

- 84% say very important
- 82% say somewhat important
- 95% say not at all important

— **Cathleen Cagney**

## HOW WE DID IT

**WE TESTED** all of the handhelds for readability, ease of inputting data, performance, roadworthiness and obvious design flaws.

### ALL HANDHELDs

**WEAKNESSES:** All units would benefit greatly from color screens. Configuring modems with any handheld device is still too complicated. Most units stored the press on the outside, making them easy to lose, and several units had the contact knob on the outside, requiring frequent readjustment.

**STRENGTHS:** All units had sufficient processor power to provide an acceptable response to commands, depending on the specific command.

For example: power on — 0.7 seconds; load Excel — 1.1 seconds; and so on.

**KEYBOARD:** We judged keyboards based on how easy it was to read the keys, key spacing and placement, and whether the finger or pen slipped off the keys.

**E-MAIL:** All units were able to retrieve and send Internet mail.

Depending on the specific product, we highly recommend some or all of the following add-on: docking station; at least one extra pen; at least 8-MB bytes of RAM; internal modem; travel case; Extended System, Inc.'s JetEye infrared adapter for your PC; Type II PCMCIA wireless modem and wireless service provider account; and Act or Goldmine contact management software.

### ALL WINDOWS CE DEVICES

The following should be noted regarding our testing of Windows CE-compatible devices: None of the units crashed or hung while running applications.

We found mail and synchronization capabilities for the most part identical on all units, and they worked without problems. We tested the infrared interface on

all units without problem. All of the devices successfully synchronized with the desktop. All were tested with Internet POP3 E-mail and worked well. They all successfully browsed the Internet using Pocket Explorer with limited graphics and successfully connected to a desktop PC using HPC Explorer and a serial cable.

All Windows CE devices were tested with a 28.8K bit/sec. credit-card modem and an external U.S. Robotics 28.8K bit/sec. modem via serial port connection (except the Compaq, which shipped with a 14.4K bit/sec. modem).

All units were loaded with a file of about 250 contact names and synchronized Schedule+ with a desktop. Performance was identical on all Windows CE units.

Vigneri is president of PC Lab, a technology consulting and product review firm in Rancho Palos Verdes, Calif. He can be reached at [tdv@pc-lab.com](mailto:tdv@pc-lab.com).



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## In Depth

The work required to bring intelligent agents into the mainstream has been arcane, meticulous and diverse and has been carried out by a relatively small and intimate group of computer scientists

# THE AGENTS'



Shirley Aigner and Charles Rich met at MIT's AI labs and are now developing an interface for human-computer interaction.

**I**ntelligent agents are sweeping the World Wide Web. In the typical fashion of the technology acceptance curve, they suddenly seem de rigueur. But the tale of how autonomous software agents have come into the mainstream isn't a

Java-like overnight success story.

The computer scientists who helped bring this technology to fruition have been

toiling in relative obscurity for years, committed to research that seems peculiar and innovative. It brings together the disciplines of computer science, cognitive development and language processing with genuine curiosity and the drive to understand human intelligence. With the advent of the Web, all their seemingly disparate efforts are coming together.

But before agents could operate in such an interactive, intelligent and autonomous

By Leslie Goff



CONTINUED FROM PAGE 93

way, detailed, complex aspects of language, human behavior and intelligence had to be broken down, distilled, understood and recreated in a digital form. So although intelligent agents may seem like just another evolutionary step in the way we use the Web to work and play, they really represent years of research by dedicated individuals in the artificial intelligence community.

## LOVER OF LANGUAGE

DOSSIER: Barbara Grosz

**TITLE:** Gordon McKay professor of computer sciences, division of engineering and applied sciences, Harvard University

**PROFILE:** Originally a number-cruncher studying mathematical and scientific computing, Grosz became more interested in how to make computers easier to use and more useful. Grosz was encouraged by then-Xerox Parc researcher Alan Kay, the inventor of Smalltalk and later a key guru at Apple Computer, Inc. She began working with him on a notebook computer that could record children's stories and then retell them. That led her to research on speech and dialogue.

**CURRENT RESEARCH:** Natural language processing in collaborative planning

**CONTRIBUTION TO INTELLIGENT AGENT TECHNOLOGY:** Grosz doesn't work on intelligent agents per se, but her research with Candy Sidner and others has helped lay the groundwork for autonomous, intelligent agents and collaborative filtering by modeling the effects of context on speech and dialogue.

Agents working solo are one thing; but getting them to work together requires them to not only recognize and respond to speech, but also to the context of the speech, which in "task dialogue" depends on the nature of what

you are trying to achieve.

**DEFINING MOMENT IN CAREER:** In her early language processing research, she joined a team working on a speech-recognition system to address the context question. "We all knew that context mattered, but we didn't know why." She found that pronouns were frequently used to refer back to items that hadn't been specifically mentioned for half an hour. But in the context of the discourse, their meaning was clear.

## THE BEHAVIORIST

DOSSIER: Barbara Hayes-Roth

**TITLE:** Senior research scientist, Stanford University; founder and CEO of Extensio Systems, Inc., San Jose, Calif.

**PROFILE:** Hayes-Roth joined the AI research team at Stanford in 1984. She began developing and testing models of agents in various real-world domains. One test model, called Guardian, monitored intensive care patients and devised — and revised — treatment plans based on responses and changes in the patients.

In 1994, when the Guardian team wrapped up, Hayes-Roth sought a problem that would provide a new aspect of intelligent agents to think about. "I started thinking about lifelike characters that would engage people in interactions that were whimsical or entertaining or related to some kind of play, and I realized that the software architecture we had created for these other domains would be ideally suited to developing entertaining agents."

That was the genesis of the Virtual Theatre project, which led her into applications that would stimulate role-playing, storytelling and decision-making among children.

**CURRENT RESEARCH:** Much of Hayes-Roth's energy now is spent on securing customers for Extensio, whose applications include hosting and guiding visitors to Web sites or interactive kiosks. She declines to release customer names, but the firm has conducted research with Sony Corp. and a small client/server groupware company called Black Sun. Seed money for Extensio came from Intel Corp., the Defense Advanced Research Projects Agency and the U.S. Department of Commerce's Advanced Technology Program.

**CONTRIBUTION TO INTELLIGENT AGENT TECHNOLOGY:** Her focus on models of adaptability, coupled with characters that engage and interact with users, brings a more human quality to the realm of intelligent agents that could have future applications in helping people adjust

their behavior and response to critical situations.

**DEFINING MOMENT IN CAREER:** Hayes-Roth has a Ph.D. in cognitive psychology, but according to her, it was having three children that brought much of what she was researching into stark relief. "Children have a way of immersing themselves in stories and play — they are experts in the suspension of disbelief."

**QUOTE:** "In my early years at Stanford, software agent technology was quite an esoteric area. Very few people in computer science were working on any kind of agents at all, and it seemed like each researcher was working on a different part of the problem. ... But now, these concepts are gaining meaning for the community at large."

## THE INTERFACE EXPERTS

DOSSIER: Candy Sidner and Charles Rich

**TITLES:** Sid: research scientist, Lotus Development Corp., Cambridge, Mass.; Rich: senior research scientist, Mitsubishi Electric Research Laboratory, Newton, Mass.

**PROFILE:** They met in the summer of 1975, working at MIT's AI lab, each contributing their respective expertise in language to a project to build an automated assistant that would schedule meetings.

Sidner was a linguist and computer scientist; Rich was more concerned with developing new programming tools but was mulling in linguistics and studying foreign languages. After that project, their professional paths diverged — Sidner went on to help develop dialogue models for task-oriented discourse, and Rich became known for his pioneering work in applying AI to software engineering. Their personal paths later merged, however — they married in 1981.

Three years ago, they began a project dubbed Collagen, exploring what happens when agents collaborate with people and devising new interfaces for human-computer interaction.

**CURRENT RESEARCH:** Collagen is intended to become a tool kit for developing human-computer interfaces that support dynamic interaction and assist users by arranging tasks around the work at hand vs. around the applications that have been opened recently. "The new interfaces will understand that we all have certain tasks we must do each day, and our lives are organized around those tasks and not the applications we

are using," Sidner explains.

**CONTRIBUTION TO INTELLIGENT AGENT TECHNOLOGY:** Sidner's research has furthered ideas about the importance of context in intelligent software. And Collagen is taking the human-computer interface to a new level. Graphical user interfaces "are basically dead; they tie the hands and make life miserable for users," Sidner says. "My hope is that Collagen will lay the foundations for a paradigm shift in terms of how user interfaces are built, from automobiles to consumer electronics," Rich says.

**QUOTE:** He: "My expertise is really in automated programming, that is, expert systems and knowledge implementation. That's why our work complements each other."

She: "We bring really different specializations and perspectives to our work."

## THE PRAGMATIST

DOSSIER: Pattie Maes

**TITLE:** Associate professor, MIT; founder and director of Firefly Networks, Inc., Cambridge, Mass.

**PROFILE:** Maes, who came to Cambridge from Belgium eight years ago, started her career in the realm of physical agents — robots — but sought a position at MIT because of the research being done by Marvin Minsky and Rodney Brooks. They deduced that intelligence is too complex to be boiled down to a few overriding principles and instead focused on unleashing the myriad inferences and learning algorithms that play a role in achieving intelligence.

**CURRENT WORK:** Maes continues her research on collaborative filtering but is largely focused on the application of her research — in products from Firefly. She has become a highly visible evangelist for intelligent agents and is intent on raising the profile of the overall domain of AI.

**CONTRIBUTION TO INTELLIGENT AGENT TECHNOLOGY:** As an early entrepreneur who helped bring intelligent agent research to fruition in the form of collaborative filtering products, Maes has helped legitimize the technology.

**QUOTE:** "AI has been around for 40 years, and a lot of the research hasn't produced very practical results. I was attracted [to MIT] because the research was very pragmatic — building things that work instead of things that may work someday." □

Goff is a freelance writer in New York.

## IT Careers

# ON THE ROAD ... AGAIN!

undreds of traveling information systems consultants take to the road every week in a demanding — and dizzying — lifestyle.

The financial rewards can be very alluring. Jeffrey Raines says by living near customer sites for months at a time while consulting, he can easily double the \$70,000 per year he would make as a permanent employee. Raines works as an independent network design, development and testing consultant at Seek Consulting Group in Wakefield, Mass.

But this work definitely isn't for everyone. The going can get very tough, says Jeff Gainer, president of Arrowhead Systems Consulting in Hamilton, Mont. "You get an incredible amount of varied experience and good time off. But you also have to spend a lot of time alone, and a lot of times you're bored," he explains. Gainer, a consultant for user interfaces and software development process management, travels about five months per year.

IS consultants say the key to making their travel more exciting and fulfilling is to learn a few tricks that make life on the move more manageable. The following are 10 survival lessons they've learned on the road.

**BY STEVE ALEXANDER**

### Take all the TIME you need

Kristi Bricker, technical manager at Sage Solutions, an IS consulting firm in San Francisco, says it's important to get a contract flexible enough to accommodate her personal needs. That can include returning home every weekend and having an apartment near a client's site rather than having a hotel room.

Tom Stevens, an IS project management consultant and president of M.I.S. Consulting Services in Suwanee, Ga., agrees. "I tell clients I won't live at their site more than five days a week. I think that's not unusual." He also recommends negotiating plenty of vacation time. "I take off seven weeks a year on average, and I build long weekends into my contracts," Stevens says.

### A Little HELP from friends

Traveling IS consultants advise getting a good travel agent who can handle details and who can be reached around the clock. "When you miss the plane, they can help you," Bricker says. "It's also nice not to have to worry about setting up your own car and hotel rentals."

With a little practice — and a bit of help — you can also learn to manage your home life while on the road, says Maria Buenaventura, who does management consulting for financial systems implementations at Ernst & Young LLP in New York. "At first I had a hard time keeping up with laundry and paying bills. But then I had my roommate mail me my bills. And if I had laundry to do when I came home, I would pay someone to do it." She also learned to look for novel ways to cut down on travel. "One weekend my fiancé flew out to the client site instead of me flying home. It was a nice



ILLUSTRATION BY CHARLES ADAMS

change of pace, and it saved me a weekend of traveling," Buenaventura says.

### A place to call HOME

It's important to be comfortable in your temporary living quarters, says Joy Matthews, a client/server training and requirements assessment consultant who travels about 40% of the time. She advises consultants to find hotels that offer suites with kitchenettes, "so you can kind of make yourself at home and set up an office."

Matthews, vice president of methodology development and training at Pivotal Applications Development Consulting Services in Stamford, Conn., also suggests seeking out hotels with "business centers," where guests can use PCs, printers and fax machines.

### PACK light, board first

The best way to travel fast is to pack light. "I carry everything I need for up to a three-week stay in a suitcase that fits in an airplane overhead compartment," Gainer says.

Leland Freeman, director of year 2000 services at Management Support Technology in Framingham, Mass., suggests

## IT CAREERS

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## On the road ... again

CONTINUED FROM PAGE 93

being the first passenger on an airplane to avoid the delays of checking your luggage.

"I heard the plane as soon as I can, because the first thing that goes in the space for carry-on luggage in the overhead storage bins. If you're the last person on the plane and the bins are full, you must check your bag. And if you fly from Boston to New York, you can wait up to 35 minutes for your checked luggage to show up on the carousel," Leland says.

### FACING UP to your clients

Some IS consultants try to minimize travel by turning down contracts that require it. Gainer is trying to be selective by seeking contracts that let him work at home part time with a computer, 56K bit/sec. modem and dial-up Internet account. "Telecommuting, even on development projects, is becoming more of a reality. I think industry is coming around to this," he says.

Robert Parkinson, an independent SAP consultant with his own firm in Roseville, Calif., disagrees. He says he tries to troubleshoot problems from home rather than travel, but clients resist it. "There's probably at least 50% of my work that could be done from home, but the clients don't want me to. So probably less than 25% of my work is done from home."



### Too BUSY to be bored

Traveling IS consultants also must cope with the loneliness of being on the road. Freeman does it by keeping

## HOW LONG CAN THIS LAST?

ROBERT PARKINSON spends about 40% of his time traveling, but doesn't want to devote many more years to it.

"I will enjoy doing it for the next three to four years, but not for the rest of my life—I'd die, I think it would be a burnout situation," says Parkinson, who is 38.

Even seniority seems to be of little help for those who seek to travel less. Leland Freeman says having seniority can mean even more travel, not less. "There is more of an expectation that you will be with the client as opposed to handling things over the phone," he says.

A consultant's skill set and the whims of clients seem more likely to control the amount of travel. "The amount of travel varies with the project," Merle Buenaventura says. "I don't find that more senior people travel less, and some people with specialized skill sets travel more."—Steve Alexander

busy. "I use a lot of the hotel gyms, and I try to bring a pair of running shoes with me," he says.

Gainer says he keeps busy by reading. "I'm very self-motivated, so I don't have to have a lot of people around all the time."

### Staying (just) IN TOUCH

Some like to stay in touch while on the move, but others like to limit their availability. "The trick is to be available but retain a little privacy," says Bricker, who carries a pager and a laptop computer for electronic mail but declines to carry a cellular telephone.

To stay in touch on the road, Parkinson uses E-mail, a cellular phone and a pager. The nature of his work—correcting problems, then waiting 24 to 36 hours to see if the SAP system is functioning properly—leaves him with personal "downtime." He says he uses downtime to contact other clients and write software tools on his laptop for the next assignment.

### HUMILITY over hostility

Some consultants have to deal with hostile client employees. "There are those who are aware of the rates consultants are making, and they do feel a little resentment. But in most cases workers are glad to see you, because they can increase their skills during the time you're there," Parkinson says.



Gainer says he tries to avoid dealing with work-related contracts. "As consultants, we are invited guests, and we should stay away from any political problems. But it depends on the situation: do you need to win them over?"

### Master the routine of CHANGE

Because the traveling IS consultant's life can be arduous, the best personal skill to develop is adaptability. Buenaventura says, "You can't plan everything as well as you normally would, so you'll have canceled webinars at home, missed hotel reservations and delayed planes." Adds Gainer, "Don't get upset about little things, because there are going to be hundreds of them."

### WITH KIDS, all bets are off

Despite tips on how to better manage travel, the one thing that consultants seem to agree on is that having children changes everything.

"Right now, traveling has given me the ability to advance my career quickly and to see new things," Bricker says. But it's hard to keep up with family and friends. "I don't think I would do this when I have kids," she says.

Buenaventura also isn't planning to travel indefinitely. "When I have kids, I'll stop traveling. I've seen other people in the firm with families try to make it work with travel, and they tend to have a hard time," she says.

Freeman says he's lucky that his wife doesn't have a job, and thus can fill in for him with their two sons while he's traveling. "But you have to make certain your spouse has the same understanding and expectations of what your travel requirements will be as you do." □

Alexander is a freelance writer in Edina, Minn.

## EXECUTIVE TRACK

**David H. Starr**, 46, has been named vice president and chief information officer at Reader's Digest Association, Inc. in Pleasantville, N.J. He will report to Stephen R. Wilson, executive vice president and chief financial officer, and will be responsible for all information technology activities. He was formerly CIO at ITT Corp., where he was responsible for computing and communications services for 68 countries. He has also held IS management positions at MasterCard International, Inc. and Citicorp.

**Justin H. Campbell**, 49, was elected senior vice president and CIO at New York Life Insurance Co. Campbell was senior vice president of consumer banking and management of deposit products, consumer payments and direct banking at PNC

Bank Corp. in Pittsburgh.

**Melvish Yardi** has been named vice president and CIO at Edison International, an electric utility in Rosemead, Calif. Yardi was vice president of information technology at Hughes Aircraft Co. She was previously a manager at IBM World Trade Corp.

**Howard Aycock** has been named senior vice president of management information systems at The Seagram Beverage Group. He will be responsible for all IS for the units of the beverage company's group, including Tropicana Dole Beverages North America, Tropicana Dole Beverages International and The Seagram Beverage Co. He was previously vice president of MIS at the company.

**Robert R. P. Chase** was recently named vice president and manager of the information management division 21 Roy F. Weston, Inc., an international environmental services firm in West Chester, Pa. Chase worked at TASC, Inc. in Reading, Mass., and has more than 19 years of technical experience at the Jet Propulsion Laboratory at the California Institute of Technology in Pasadena, the Woods Hole Oceanographic Institution in Woods Hole, Mass., and as a professor of engineering sciences at the University of Colorado in Boulder, Colo.

**Vincenzo DePelle** was recently named director of information technology at Technology Service Solutions in Wayne, Pa. A 30-year IS veteran, DePelle has held IS



and executive management positions at The Hay Group, Travelers Insurance Co. and American Express Co.

### COMPUTERWORLD

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**Language Support Specialist** Requires 5-5 years' experience with troubleshooting and problem resolution on OpenVMS and software based products, primarily ACS, C, C++, DCE, PL/I and FORTRAN. Experience with AKA, BASIC, QJES, COBOL, RTR, FORTE, FORTRAN, Dataserve and DECnet would be beneficial.

**Network Support Specialist** Requires 5-5 years' experience in network troubleshooting and isolation using DECnet and other network protocols on multiple platforms. Knowledge of associated networking applications and strong account management/communication skills is essential. Microsoft NT Certification highly desirable.

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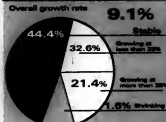
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### TAC Systems' LANRedi™ Jazzband introduces innovative networked storage solution

TAC Systems, Inc. announced the addition of the LANRedi™ Jazzband to their extensive line of networked storage towers. The LANRedi Jazzband fuses the latest innovations from three technology leaders to offer unprecedented quality and speed. Users get TAC's sound record for superior construction and customer service, a built-in server from AXIS Communications, and seven removable, one-gigabyte Iomega Jaz® drives.

TAC Systems' CEO, Luis Ayala comments, "This product is an industry first. We've taken the fast and easy-to-use Jaz drive and made it into a free-standing, rewritable storage tower that can be easily connected

to a local network." Featuring integrated network technology, the LANRedi Jazzband requires no additional server resources for Novell®, Windows® NT, and Internet networks. Users simply plug a 10Base-T Ethernet cable into the back of the tower for quick network access. The LANRedi Jazzband recognizes IPX and TCP/IP protocols for a direct Internet connection and supports NFS, SMB/IPC, NetBEUI.

The LANRedi Jazzband's classic lines offer an attractive solution for storing large amounts of data. The compact design measuring 15" h x 6" w x 12" d ensures that desk space is not compromised. Weighing only 35lbs, the LANRedi Jazzband is very portable too. The seven-bay

LANRedi Jazzband lists for under \$6,000. A four-bay configuration is available for less than \$5500. Both models can be

upgraded to 32 megabytes RAM. Contact: Candice Danaway, TAC Systems, Inc. at (205) 721-1976, or e-mail cdanaway@tac.com, or www.tacsyste.ms.com



### Heroix Unveils New Rule Wizard in RoboMon NT V6.2

RoboMon NT's new Rule Wizard provides a fully integrated, graphical environment for easy customization of RoboMon Rules which monitor and solve site-specific problems. RoboMon monitors Windows NT based on rules that determine what conditions to look for, and what notification or corrective actions to take as problems are detected. The Rule Wizard puts the building blocks that comprise rules – schedules, selections, conditions and actions – in an easy-to-use, graphical form.

RoboMon NT software automates Windows NT systems administration by monitoring and solving many problems associated with Microsoft's Windows NT Server, Exchange Server, Internet Information Server, SQL Server, and Systems Management Server. RoboMon NT V6.2 pages personnel through an integrated paging action, and its Email notification action now supports Lotus® CC: Mail and SMTP mail, as well as Microsoft



Exchange. RoboMon NT's native event display provides centralized, multi-platform monitoring from any point in the network, encompassing Windows NT, AIX, Digital UNIX, HP-UX, Solaris, SunOS, and OpenVMS.

RoboMon NT is available for Intel and Alpha, with prices ranging from \$200-\$5,000 (prices subject to change).

For more information: Margaret Nataris, Marketing Manager, Heroix Corporation, 800-225-6500, x232, pr@heroix.com, http://www.RoboMon.com

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Address		
City	State	Zip

## The Week in Stocks

## Gainers



## Losers



## PERCENT

Symbol	Company	Change
SPC	Symbol Technologies Inc.	26.1
SPC	Symbol Technologies Inc.	25.9
SPC	Symbol Technologies Inc.	25.8
SPC	Symbol Technologies Inc.	25.7
SPC	Symbol Technologies Inc.	25.6
SPC	Symbol Technologies Inc.	25.5
SPC	Symbol Technologies Inc.	25.4
SPC	Symbol Technologies Inc.	25.3
SPC	Symbol Technologies Inc.	25.2
SPC	Symbol Technologies Inc.	25.1

## DOLLAR

Symbol	Company	Change
SPC	Symbol Technologies Inc.	25.1
SPC	Symbol Technologies Inc.	25.0
SPC	Symbol Technologies Inc.	24.9
SPC	Symbol Technologies Inc.	24.8
SPC	Symbol Technologies Inc.	24.7
SPC	Symbol Technologies Inc.	24.6
SPC	Symbol Technologies Inc.	24.5
SPC	Symbol Technologies Inc.	24.4
SPC	Symbol Technologies Inc.	24.3
SPC	Symbol Technologies Inc.	24.2

## INDUSTRY ALMANAC

## Internetworking profits slide

Price pressures in the highly competitive internetworking world have trimmed the profits of market leaders 3Com Corp. and Cablettron Systems, Inc. 3Com's most recent quarterly revenue was \$430 million, a 23% increase over the \$660 million in the same quarter last year. But profits didn't keep pace, increasing only 8%, from \$82.5 million to \$89.2 million. Analysts attributed lagging profits to a price war on network adapter cards. Neel Lindgren, an analyst at Deutsche Morgan Grenfell Technology Group in Menlo Park, Calif., says 3Com showed "strong growth in Ethernet adapters" but not explosive growth because of "aggressive price reductions." He says 3Com can maintain its dominance by selling systems that build network infrastructures.

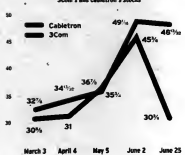
Cabletron saw its stock price drop 33% to \$30 [see chart] in early June after the Rochester, N.H.-based company said it expected to cut earnings of 38 cents per share, below the 50 cents per share most analysts had expected.

Bill Beckles, an analyst at Tucker Anthony, Inc. in Boston, says Cabletron's woes stem mainly from its history as a provider of shared-media hubs. "Their hub business has declined, and they haven't been able to keep up with demand for their new SmartSwitches," Beckles says. Cabletron says it hasn't been able to keep up with demand recently because it hasn't been able to acquire the application-specific integrated circuits—the brains of switches—the trend.

—Stewart Dock and Wylie Wong

## TUG-OF-WAR

Competitive pressures have slowed the growth of 3Com's and Cabletron's stocks



## COMPANIES AND STOCK PRICES

Company	Stock Price
3Com Corp.	30.00
Cabletron Systems, Inc.	30.00
Symbol Technologies Inc.	25.00
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KEY: (p) = New annual high reached in prior (p) = New annual low reached in prior (p) = New annual high reached in prior (p) = New annual low reached in prior

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## The Week in Stocks

## Gainers



## Losers



10

	P	E	N
Random Computers Inc.(24)	34.1		
Vanderbilt Corp.	78.8		
Micrographix Inc.	18.4		
Computer Networks Tech.(1)	18.2		
Open Market Inc.	12.2		
VLSI Technology	9.9		
Computer Vision Corp.	11.3		
Realtime Inc.(1)	10.1		

Mohrsky Inc. (H)	6.38
Shindler Engineering Inc. (H)	6.38
Storck Corp. (H)	4.80
Storage Technology	3.64
Suzuki Corp.	2.68
Takayama Inc. (H)	2.88
VL 51 Technology	2.43
Wardlaw Corp.	2.25

## INDUSTRY ALMANAC

## Internetworking profits slide

Price pressures in the highly competitive internetworking world have trimmed the profits of market leaders **Cybercom Corp.** and **Cabletron Systems, Inc.**

—JCom's most recent quarterly revenues were 300 million, a 25% increase over the \$660 million in the same quarter last year. But profits didn't keep pace, increasing only 8%, to \$84.5 million to \$89.2 million. Analysts attributed lagging profits to a price war on network adapter cards. Noel Lindsay, an analyst at Deutsche Morgan Grenfell Technology Group in Monte Park, Calif., says JCom showed "strong growth in Ethernet adapters" but not explosive growth because of "aggressive price reductions." He says JCom can maintain its dominance by selling systems that build network infrastructure.

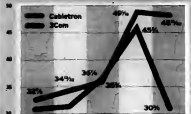
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— Stewart Deck and Wylie Wong

### TUG-OF-WAR

Competitive pressures have slowed the growth of 3Com's and Cabletron's stocks



Index	12 Weeks	Round	Index	12 Weeks	Round
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KEY: (1) = New annual high reached in period (1) = New annual low reached in period

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## COMMENTARY

## Ease-of-use column strikes a nerve

David Coursey

**M**y recent flame, er, column concerning Microsoft and ease of use [CW, June 16] apparently struck a nerve — and a raw one at that. On one hand, it's nice to know I'm not the only one who works into the night doing reinstalls on machines that stopped working for no apparent reason.

But when I add up what that must be costing — not just in dollars but in mental aggravation and the portions of our lives we surrender to idiotic machines — I get really torqued.

My contention is that rather than buying into the cable television industry, Microsoft should invest its idle billions on raising the quality of its software and making computers easier to use. But among the three dozen or so electronic-mail messages I received were a couple that took exactly the opposite view; essentially, that ease of use is exactly what keeps us in business.

The argument goes like this: If networks and PCs were really easy to use, vendors wouldn't have to release their

yearly updates, adding features that supposedly improve usability. Without that annual (or however often) revenue hit, Microsoft (and everyone else) would be out of business real quick. Further, without tons of new software to install (and trouble-shoot) and the accompanying millions of users to train, corporate IT departments would have a considerably smaller reason for being. Which is to say — according to this theory — that Computerworld readers aren't just major victims of complexity, but ma-

jor beneficiaries as well.

That, of course, leaves mere users at the bottom of the food chain. They'd be just as happy, I suspect, if the high priests of the data center were to suddenly dematerialize. Then their systems might actually stabilize, and they'd be able to use what they've learned for a while before having to learn something new.

You may call this point of view cynical (complexity equals jobs) or fatalistic (things would solve themselves if we'd just leave them alone). As your humble servant, I will take both views.

Yes, complexity creates work, but that will always be the case. And what's supposed to be so complex about setting up a mail server, anyway? To wit, if we weren't facing this particular complexity, we'd be facing any others. Complexity always expands way beyond the amount of time allotted for dealing with it.

But as a user, I think it would be won-

derful if Microsoft didn't seem to have a new file format every year and would instead let me get comfortable with the applications I already use before telling me I need to upgrade to something ever cooler.

## THE MAC FACTOR

There was another group of letter writers I'd like to address: those who pointed out that I wouldn't be having these problems if only I used a Macintosh. In their honor, I am using the Macintosh that sits behind my desk to write this column.

The great thing about the Macintosh is that I can't imagine spending as much time in a month messing with it as I do with the Windows 95-based machine. Sure, the Macintosh doesn't have the latest and best software — developers are still staying away in droves — but if the Macintosh does what you want to do, it's far easier to deal with than Windows 95.

Thanks for the E-mail. □

Coursey, an analyst and consultant, is editor of "Coursey.com," an online newsletter available at [www.coursey.com](http://www.coursey.com). His E-mail address is [david@coursey.com](mailto:david@coursey.com).

## Dispatches from the Internet revolution

Frank Hayes

**L**oose lips, sinking ships, war hysteria and shell shock from the front lines of the Internet revolution as we head toward the Fourth of July:

## CACHE AS CACHE CAN

Not long ago, I hammered Sun for not pushing for better Java performance from Web browser vendors such as Netscape and Microsoft.

One easy way to kick-start Java applets is by caching them once they've been downloaded, just as Web pages and pictures are. That way, the applet doesn't have to be downloaded again and again — which can save lots of time when applets are large and connections are by modem.

It turns out Netscape's Navigator does cache Java applets. Sorry, Netscape — I done you wrong. (Microsoft's Internet Explorer still doesn't cache Java applets, which may have sparked the user complaints that generated that column.)

## PROMISES, PROMISES

I also took a poke at Sun for sitting on its free Java accelerator, which it promised back in early April at the JavaOne conference. Now Sun's JavaSoft division says

the accelerator, known as the Java Performance Runtime, will be available for public beta-testing "any week now." No word on when the production version will be ready.

## HAPPY NEW YEAR

Microsoft's Authenticode security system for ActiveX components will self-destruct June 30, which, coincidentally, is the last day of Microsoft's fiscal year.

Yes, Authenticode is supposed to stop working. That will force users to upgrade to an improved version of the security system, which is built in to Internet Explorer. The upgrade is free from Microsoft's Web site. What isn't free is the time it will take you to install the security module on every user's desktop — just when you planned to be closing the books on the quarter.

## BEST OF BOTH WORLDS

And you'll want all the security you can get, because the next version of Internet Explorer will let hackers write Java applets that can eyeball your private data, erase your hard disk drive or simply grab control of your Windows 95 or Windows NT computer.

Microsoft's J/Direct interface, which will be built in to Internet Explorer 4.0, will let Java programmers punch through Java's usual tight security and give them complete control of a user's PC.

In other words, J/Direct combines Java's performance problems with the same security holes that get heavy criticism in ActiveX.

Who comes up with these ideas? And with all the very smart people Microsoft has hired over the past few years, couldn't someone who understands Internet security be put on the payroll?

## WHAT'S DANISH FOR BOM BUST?

Finally, heartfelt appreciation from thousands of consultants to CaboComm, the

outfit in Aarhus, Denmark, that found a security hole in Netscape's Navigator.

Other security researchers — the team at Princeton University, for example — have talked their way into getting extensive ongoing funding from Microsoft, Sun and others after finding security problems in those vendors' commercial products.

Not these clowns — they just managed to acquire bad publicity. When Netscape refused to pay up more than its usual \$1,000 bug-finding prize, a CaboComm consultant took the story to CNN. CNN, in turn, showed its bug-testing computer to Netscape, which used it to whip up a fix.

The consultant later told the *San Francisco Examiner* that \$100,000 from Netscape would have been more than enough compensation for finding the bug. Instead, CaboComm got flack.

But this comedy of Aarhus makes any consultant who doesn't demand a six-figure bug-finding payoff look like a pretty honest soul by comparison. Thanks, guys! □

Hayes is Computerworld's staff columnist. His Internet address is [frank\\_hayes@cw.com](mailto:frank_hayes@cw.com).



## The Back Page

## alt.cw

Disputes &amp; managers from the wings of the sector from the

## NORTHERN LIGHTS, ELECTRIC SKY

The first virtual reality show of the aurora borealis phenomenon opened this month

at the Watson Lake Northern Lights Centre in Canada's Yukon territory ([www.yk.ca](http://www.yk.ca))

Virtual reality lights. The 100-seat, domed theatre has an "immersive visualization" system called the ElectricSky and features four Electrohome video projectors that create a seamless panorama. The image is 200 degrees wide and 60 degrees high and covers half the planetarium's dome. The center expects to have lectures on the northern lights and poetry readings under the stars.

## Rules of thumb

- A password should be six to eight characters. Use upper- and lowercase letters and include at least one number.
- Convert training into experience as soon as possible.
- Plan on one person-year of work to convert 167,000 lines of code for the year 2000.
- Never go to more than two meetings a day or you will never get anything done.
- The No. 1 reason overseas assignments fail is that the spouse hates it.
- At most, only half the time spent on a plane will be productive.

SOURCE: U.S. Air Force; National Institute of Standards and Technology, Gaithersburg, Md.; New Census Bureau; Rudy by Richard A. Moran (HarperBusiness, 1993); Wall Street Journal.

## Digital archives

20 YEARS AGO  
(JULY 1977)

- Headline: "Senate gets first DP crime bill"
- Microsoft ships "Microsoft Fortran" for CP/M-based computers.
- Headline: "Heath introduces kits for personal DP"

The V-Cap 1000 head-mounted display recently won a bronze design award from the Industrial Designers Society of America. It was jointly developed by Virtual Vision in Redmond, Wash., and Vent, a design firm in Campbell, Calif. The voice-activated visor provides computer information to field workers who must focus on the work at hand.

10 YEARS AGO  
(JULY 1987)

- Microsoft acquires the maker of the Power-Point presentation graphics program.
- WordPerfect creates an Amiga/Atari division.
- Sun Microsystems introduces its first SPARC-based workstation.
- Apple Computer creates the software company Claris.
- Headline: "3Com, Bridge plan merger"
- IBM ships first PS/2 Model 80 systems.

## Inside Lines

## Intel readies automated virus scan

The networking division at Intel is preparing to add automated virus scanning capability to its LANDesk Management Suite, an integrated tool kit for maintaining PC workgroups. LANDesk agent software or the BIOS chip built into NetPCs and new PC models will make each system scan the network at start-up for a management server, which then can push software updates or check for bugs. Look for the LANDesk update July 29.

## Amazon weird

Customer service representatives at online bookseller Amazon.com have an ongoing contest for spotting weird book titles. Some recent winners: *How to Raise, Store and Sell Nightcrawlers*; *The Standard Life of a Temporary Pantyhose Salesman*; *Making the Most of Your Loner*; *Unscripted: The Popes Bare All*; *Women Who Love Men Who Hate Men Who Love Other Men*; *How to Operate a Financially Successful Haunted House*; *How to Trick Your Coldfish Using Dolphin Training Techniques*; *Not Quite Dead Enough*; *A Street Analysis of a Strapsless Evening Gown*; and *I Don't Remember Dropping the Skunk, But I Do Remember Trying to Breathe: Survival Skills for Teen-agers*.

## Canada for the anal retentive

A building official who inspected the new home of Microsoft mogul Bill Gates last month passed on these observations: All exposed timbers are sanded to a satin finish and nearly perfect — no knots. All bolts are stainless steel, oriented in the same direction. A favorite 140-year-old maple tree by the driveway is monitored constantly by a computer to get the right amount of water automatically. And a cedar tree, which Gates considered to be in the wrong location, was moved — six inches.

## NC fever grips Ellison

After months of carefully choreographed build up by Oracle's database marketers, Oracle ended up playing second fiddle at its own launch last week. Oracle CEO Larry Ellison spent most of his 80-minute soliloquy showing off his beloved network computer. Oracle didn't get a mention until 30 minutes had gone by, leaving many in the Radio City Music Hall audience wondering whether they had wandered into the wrong event. Sources said Ellison, after being presented with plans for the Oracle announcement, decided he also wanted to talk about network computers — a pronouncement that apparently provoked paroxysms of panic in his database minions.

## No business like show business

Two weeks after saying many product announcements "are unnecessarily glitzy" Ellison pulled off all the steps at the Oracle/network computer event. He arrived atop a three-level stage that rose through the Radio City Music Hall floor. He pushed a PC and a network computer off a table, provoking a smoky explosion of computer parts. At the end, he called Gen. Colin Powell up on stage to talk about a new charitable foundation created by Oracle. There were a couple of glitches, though. Ellison almost got bonked by a camera on a mechanical arm, and many of the network computers set up in the lobby crashed when people tried to use them.

Here are some definitions we've run across recently.

**Cubans** — a Web site that isn't updated for long periods of time.

**BetaMaze** — what happens when a company with superior technology loses out to a competitor with better marketing.

**Prarie Dogging** — when someone in a cubicle says something, and everyone else pops his head up to hear. Square-headed girlfriend — what a guy's computer becomes if he spends too much time with it.

If you have computer-related definitions you'd like to share, or possibly a hot new tip, contact news editor Patricia Kagle at (908) 820-8183 or [patrick\\_kagle@cw.com](mailto:patrick_kagle@cw.com).



## The Back Page

## altcw

Disrupts Back Page from the pages of the section for ever

## NORTHERN LIGHTS, ELECTRIC SKY

The first virtual reality show of the aurora borealis phenomenon opened this month at the Watkins Lake Northern Lights Centre in Canada's Yukon territory.

The 100-seat, domed theatre has an "immersive visualization

system called the Electric Sky and features four Electrohome video projectors that create a seamless panorama. The image is 200 degrees wide and 60 degrees high and covers half the planetarium's dome. The center expects to have lectures on the northern lights and poetry readings under the stars.

## Rules of thumb

- A password should be six to eight characters. Use upper- and lowercase letters and include at least one number.
- Convert training in to experience as soon as possible.
- Plan on one person-year of work to convert 167,000 lines of code for the year 2000.
- Never go to more than two meetings a day or you will never get anything done.
- The No. 1 reason overseas assignments fail is that the spouse hates it.
- At most, only half the time spent on a plane will be productive.

Sources: U.S. Air Force National Institute of Standards and Technology, Gaithersburg, Md.; New College a dinner with Dudley by Richard A. Maran (HarperBusiness, 1995); Wall Street Journal, New York.

## Digital archives

20 YEARS AGO  
(JULY 1977)

- Headline: "Senata gets first DP crime bill"
- Microsoft ships "Microsoft Fortran" for CP/M-based computers.
- Headline: "Heath introduces kits for personal DP"

The V-Cap 1000 head-mounted display recently won a bronze design award from the Industrial Designers Society of America. It was jointly developed by Virtual Vision in Redmond, Wash., and Vent, a design firm in Campbell, Calif. The voice-activated visor provides computer information to field workers who must focus on the work at hand.

10 YEARS AGO  
(JULY 1987)

- Microsoft acquires the maker of the Power-Point presentation graphics program.
- WordPerfect creates an Amiga/Atari division.
- Sun Microsystems introduces its first SPARC-based workstation.
- Apple Computer creates the software company Claria.
- Headline: "3Com, Bridge plan merger"
- IBM ships first PS/2 Model 80 systems.

## Inside Lines

## Local readers, automated view scan

The networking definition of local is preparing to add automated view scanning capability to its LANDesk Management Suite, an integrated tool kit for maintaining PC workgroups. LANDesk agent software or the BIOS chip built into NetPCs and now PC models will make each system scan the network at start-up for a management server, which then can push software updates or check for bugs. Look for the LANDesk update July 29.

## Amazon swirl

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## Fascists for the real reduction

A building official who impacted the new home of Microsoft might still Gates last month passed on these observations: All exposed timbers are needed to a little finish and nearly perfect — no knots. All bolts are stainless steel, oriented in the same direction. A few 100-year-old samples from the delivery is monitored constantly by a computer to get the right amount of water automatically. And a cedar tree, which Gates considered to be in the wrong location, was moved to the kitchen.

## PC fever grips Illinois

After months of chaotic choreographed build up by Oracle's database marketers, Oracle ended up playing second fiddle at its own launch last week. Oracle CEO Larry Ellison spent most of his 30-minute address showing off his beloved network computers. Oracle didn't get a mention until 30 minutes had gone by, leaving many in the Radio City Music Hall audience wondering whether they had wandered into the wrong event. Sources said Ellison, after being presented with plans for the Oracle announcement, decided he also wanted to talk about network computers — a presentation that apparently provoked paroxysms of panic in his database salesmen.

## No business like show business

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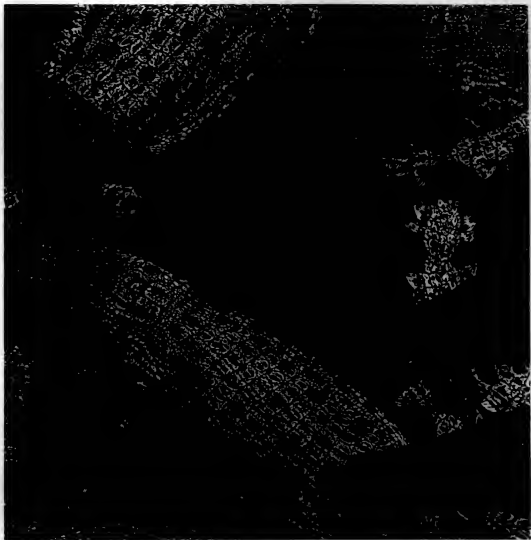
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**BrainMeat** — what happens when a company with superior technology loses out to a competitor with better marketing.

**Pravie Digging** — when someone in a cubicle says something, and everyone else pops his head up to hear. Square-headed girlfriend — what a guy's computer becomes if he spends too much time with it.

If you have computer-related definitions you'd like to share, or possibly a hot news tip, contact news editor Patricia Keefe at (202) 870-8183 or patricia.keefe@cw.com.



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